VOLUME XLII NUMBER FIVE

The NATIONAL GEOGRAPHIC MAGAZINE

NOVEMBER, 1922

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TO carry out the purposes for which it was founded thirty-four years ago, the National Geographic Society publishes this Magazine. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization which was waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members through The Society to the Federal Government when the congressional appropriation for the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

THE Society is conducting extensive explorations and excavations in northwestern New Mexico, which was one of the most densely populated areas in North America before Columbus came, a region where prehistoric peoples lived in vast communal dwellings whose ruins are ranked second to none of ancient times in point of architecture, and whose customs, ceremonies and name have been engulfed in an oblivion more complete than any other people who left traces comparable to theirs.

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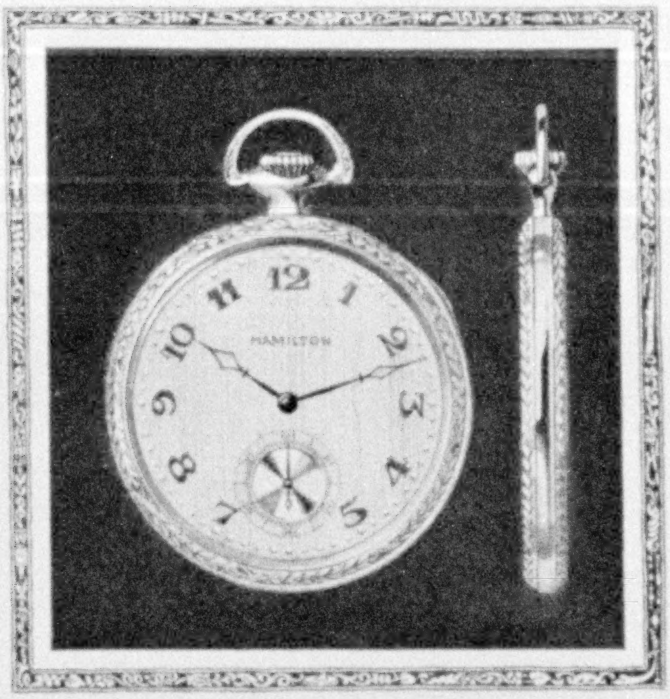


How Often Do You Look at Your Watch?

ANYTHING that you have to gaze upon as many times a day as you do your watch, should be beautiful. And with the Hamilton Watch, beauty is more than skin deep. Exquisite case and chaste dial are but the outer envelope of a timekeeper famous everywhere for its accuracy.

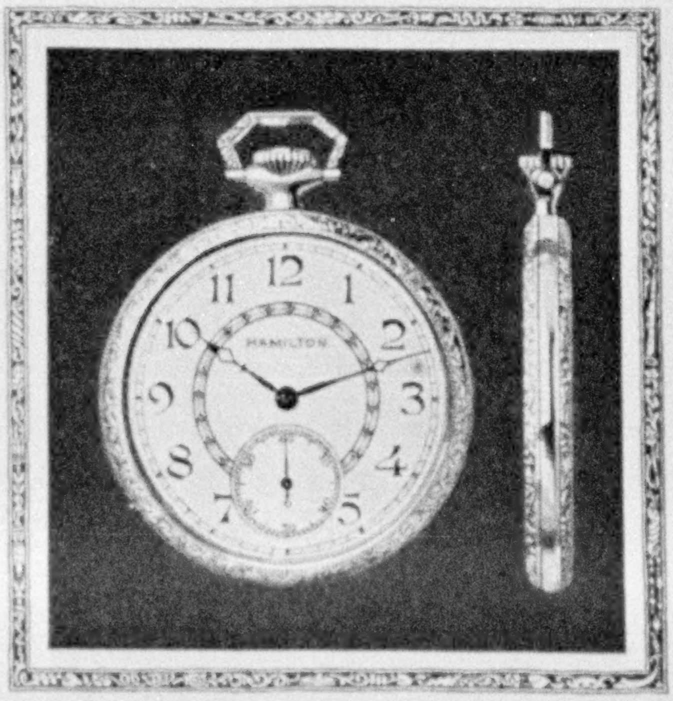
So reliable is the Hamilton that it is generally looked upon as the standard by railroad men, whose watches *must* be accurate. Another sidelight that shows Hamilton accuracy is the particular satisfaction jewelers take in selling Hamilton Watches. They have learned by experience that when a Hamilton is sold, no dissatisfied customer is coming back to leave his watch for constant readjustment.

Hamilton Watch

"The Watch of Railroad Accuracy"

For women as well as men, there are many beautiful Hamilton models. Prices range from $40 to $200. Movements alone, $20 (in Canada $23) and up. Send for "The Timekeeper," an interesting booklet about the manufacture and care of fine watches. The different Hamiltons are illustrated, and prices given.

HAMILTON WATCH CO., *Lancaster, Penn.*



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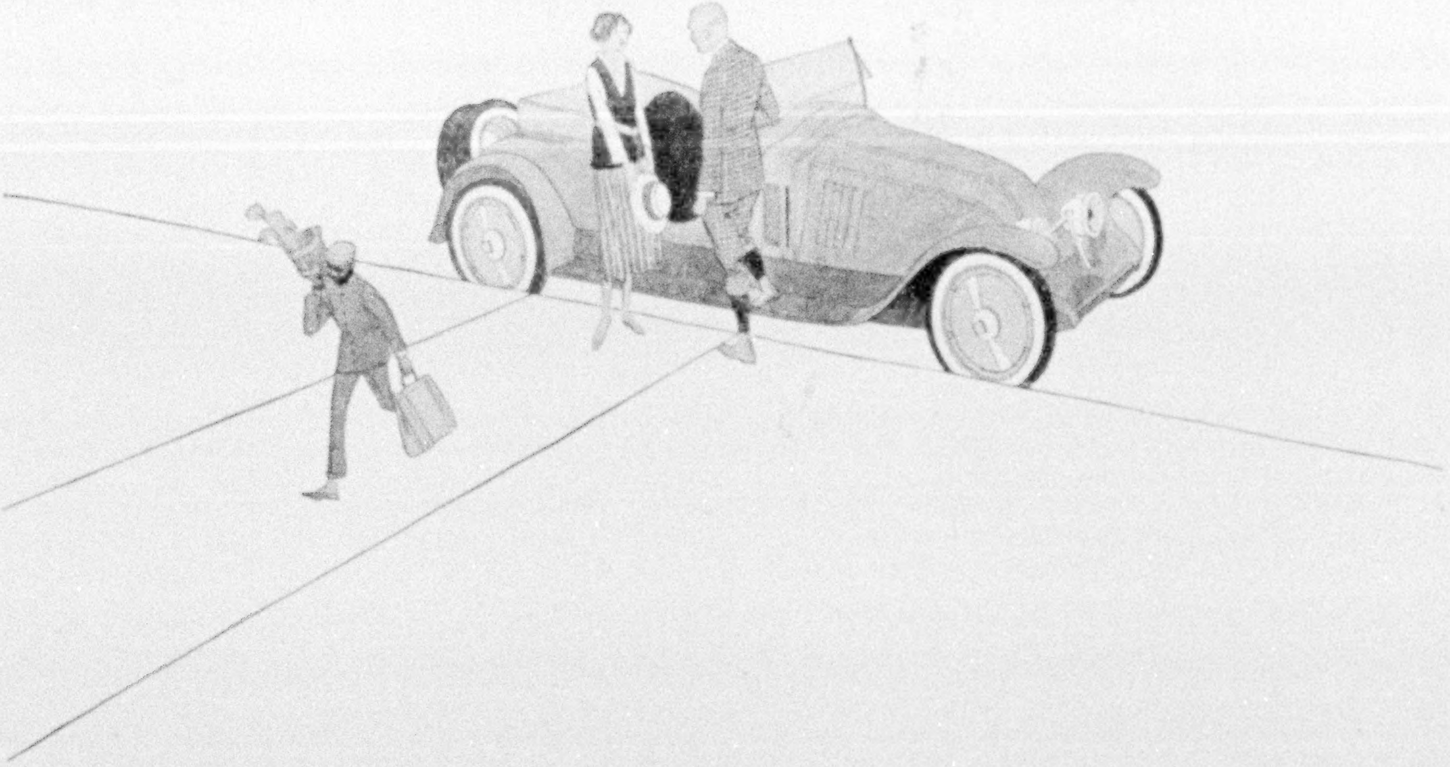
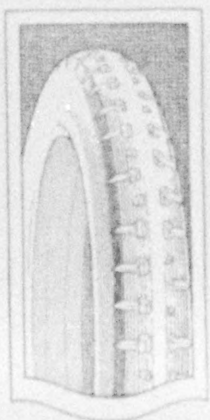


MASON CORDS

THANK GOODNESS for that admirable host of men and women who are satisfied to possess only the genuine and worth while. Theirs is the joy of lasting satisfaction. Always, these gifted few reflect the yearning desire of us all. To them, mediocrity is unforgivable. Perhaps that is why Mason Cords so frequently grace their finest cars.



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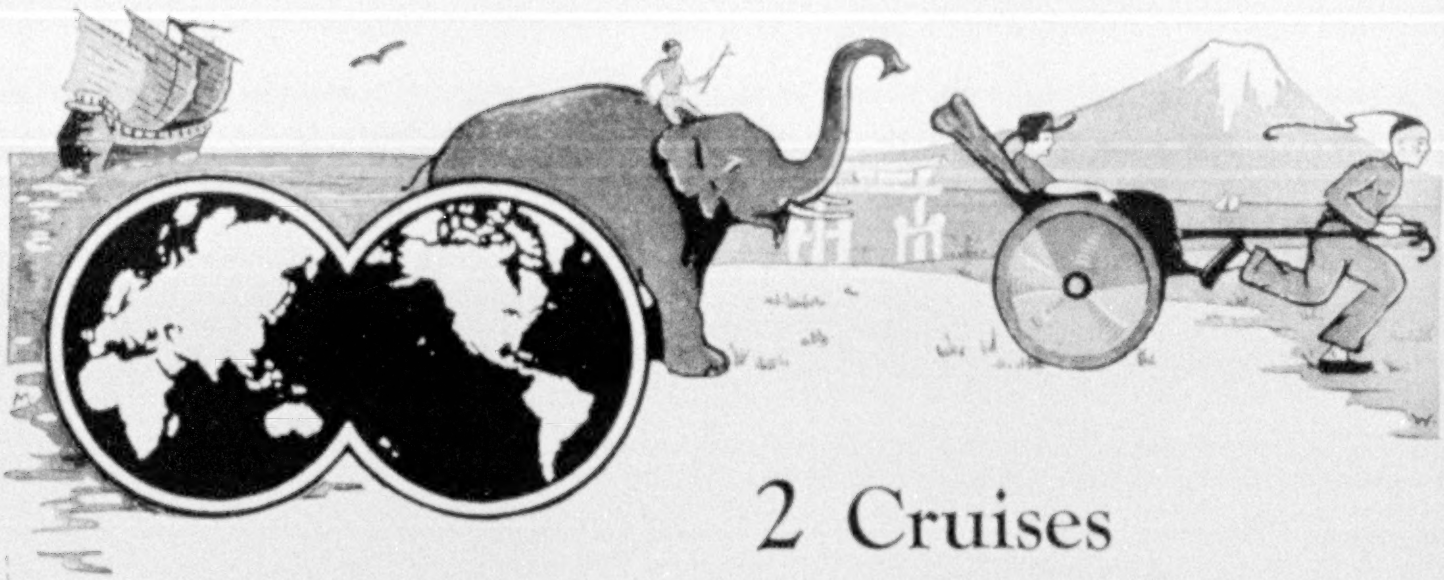

2 Cruises
Round-the-World

New oil-burning S.S. "Resolute" of the United American Lines, sailing January 9, 1923

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The goal of every discriminating traveler may now be realized comfortably, easily, satisfactorily on the Raymond-Whitcomb Round-the-World Cruises

You sail from ocean to ocean—from port to port—on one of the world's finest, best equipped ships. In addition, you have our unparalleled Cruise offerings since the War; our preeminently extensive and successful Round-the-World experience and our up-to-the-minute knowledge of Far Eastern travel conditions to assure you of comprehensive routes and intensively interesting programs

Rates are $1050 and up—from New York to New York. Many shore excursions are included, without extra charge. Fascinating side trips have been planned for Cruise members. Details on request

The expertly planned schedules are unparalleled in their comprehensiveness and essential travel interest. Briefly, they include West Indies, California, Hawaiian Islands, famous Kilauea, 14 days in Japan, China, Philippine Islands, 4 days in Java, Burma, 21 days in India, Egypt, Italy, Monte Carlo, Boulogne

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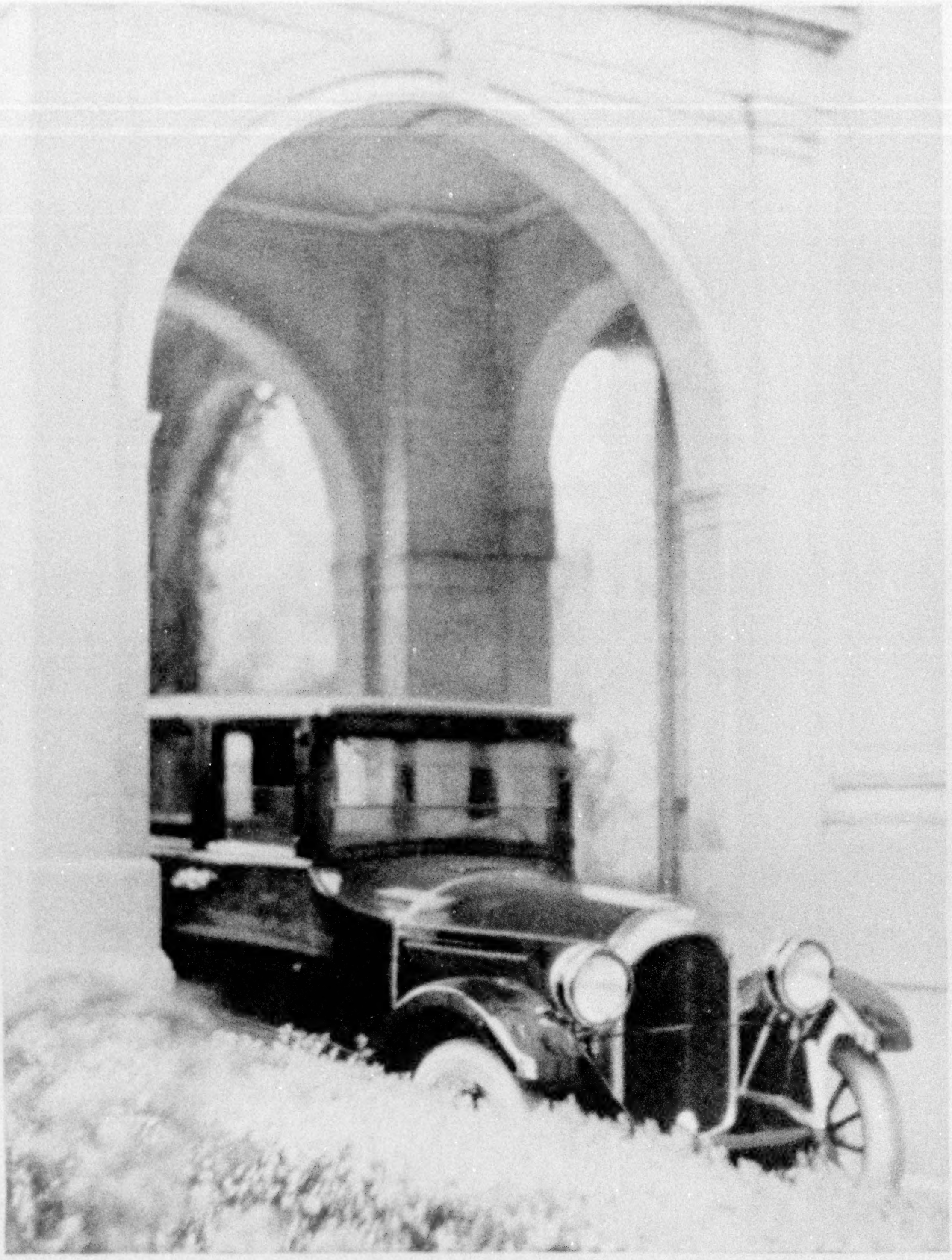

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The new Series Paige 6-66 Enclosed Models are superbly beautiful examples of the coachmaker's art. They offer every luxury and convenience that the most discriminating motorist could desire.

And, most important of all, they promise years of care-free service with a world famous chassis that is the last word in six-cylinder engineering.

If you would know enclosed car motoring at its best, we recommend one ride behind the giant 70 horsepower engine which has practically banished vibration at any and all driving speeds. Won't you take that ride in the Sedan or Coupe at your first opportunity?

THE MOST BEAUTIFUL CAR IN AMERICA

The Caliph's gift was inscribed, "From the Emperor of the East to the Emperor of the West." On the dial were twelve doors. The hour was struck by the opening doors, which released metal balls to fall on a brazen gong. At noon twelve horsemen rode forth and shut all the doors.

The Value of Time

By Krónos

Painting by HAROLD DELAY

TO CHARLEMAGNE'S court from far-away Bagdad came an oriental water-clock.

King of the Franks and Roman Emperor, the mighty Charlemagne was ever mindful of the value of Time. For his empire was vast, his government personal: he must needs make moments count. Education, brushed aside in his youthful fighting days, became his burning ambition. While he ate he listened to history. While he dressed he gave audience to pleas for justice. Wakeful nights found him struggling to learn to write.

Time made the unlettered monarch one of the greatest educators of the Middle Ages.

Haroun-al-Raschid, caliph of Bagdad, read the secret of Charlemagne's power and paid it subtle tribute—a wondrous water-clock inlaid with gold.

Proudest possession of a proud empire, eleven centuries ago—yet how crude a device compared to those marvelous timekeepers of our own day—

Elgin Watches

MADE IN ELGIN, U. S. A.

*Below, at right, one of the new Classic Series * * * Original design, thin model Lord Elgin movement, exquisitely finished—$150 * * Other new and beautiful Elgin models to choose from, $35 to $500.*

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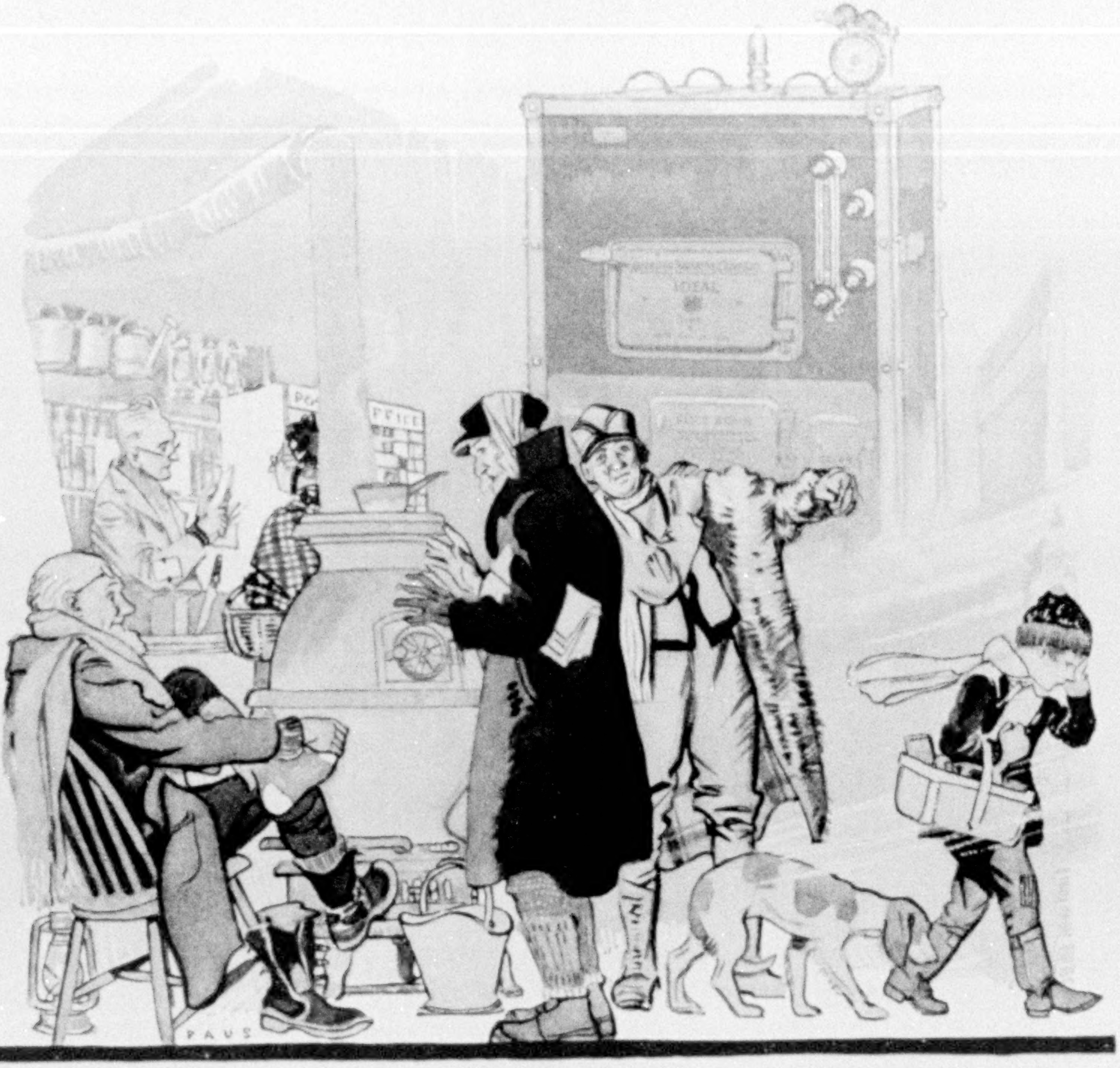

From painting by
Herbert Paus

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WISDOM

The round, red-hot stove in the country store—what an altar of Wisdom it was! How often have the destinies of man been settled by its side!

And if the destinies refuse to *stay* settled; if, in clubs and homes, the ancient debates still are carried on, at least there is this much progress—the debates may still be heated, but the rooms are not. They're warmed.

The Ideal Type A Heat Machine does what the old stove never could. It fills the whole house with healthful hot-water warmth, and pays for itself in the fuel it saves.

Send your name to either address below for a finely illustrated book, describing the Ideal Type A Heat Machine.

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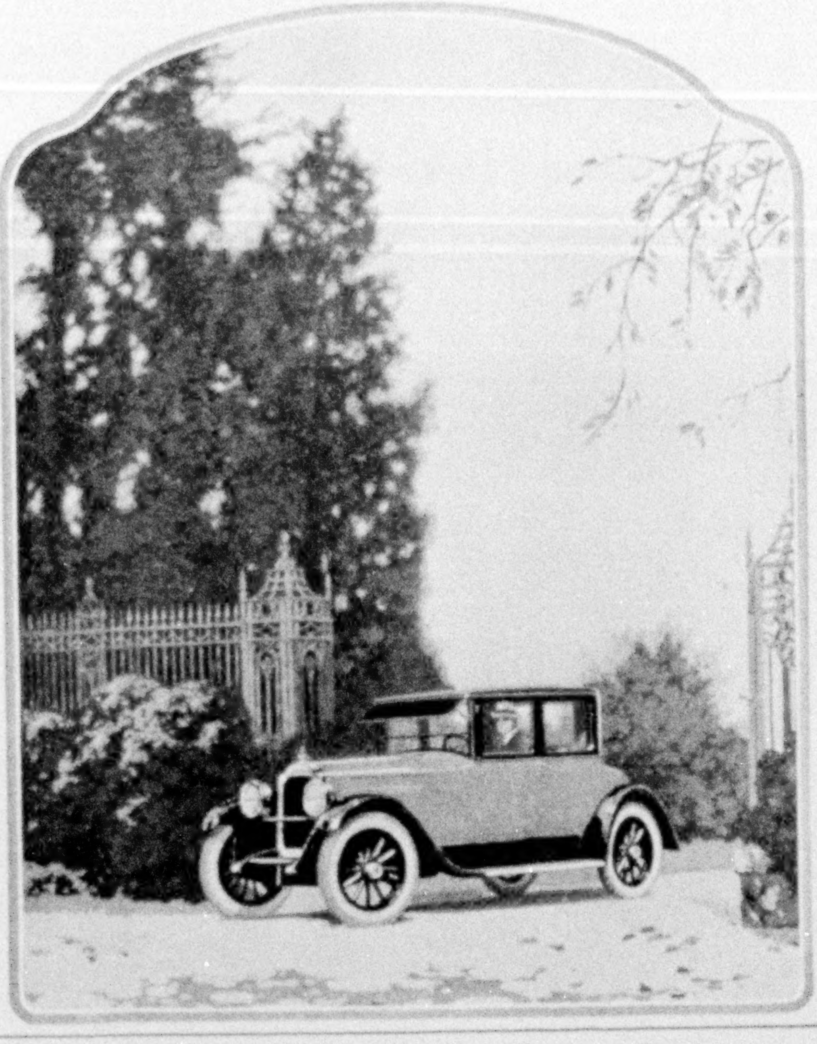


The
SINGLE-SIX
COUPE

ASK THE MAN WHO OWNS ONE

With the advent of the Single-Six, Packard brought about a complete reversal of fine-car manufacture.

Instead of limited production, Packard now applies the sound principles of larger production, and its resulting economies, to a car of the very highest quality.

Instead of high manufacturing costs, and lower values in the product, it accomplishes lower manufacturing costs, and far higher values in the product.

It is safe to say that no plant in the world, producing a car of Packard's quality, could go farther in this direction.

The Packard organization is skilled and experienced in the finest kind of work. Packard precision-machine equipment is not excelled.

Working to the high Packard standard of excellence, but on a basis of costs now analyzed and budgeted almost to the penny, Packard is enabled to embody in the Single-Six a height of value hitherto unattained in the field of fine cars.

Five-Passenger Touring, $2485; Seven-Passenger Touring, $2685; Runabout, $2485; Sport Model, $2650; Coupe, $3175; Five-Passenger Sedan, $3275; Seven-Passenger Sedan, $3525; Five-Passenger Sedan Limousine, $3325; Seven-Passenger Sedan Limousine, $3575; at Detroit

The Packard Twin-Six provides a quality of motoring beyond which it is not possible to go. Truck users know there is profit in hauling with Packard Trucks. All Packard upkeep is made still more economical by Packard standardized service

PACKARD

How Ten Minutes' Fun Every Day Keeps Me Fit

By Walter Camp

Famous Yale Coach's "Daily Dozen" Exercises Now on Phonograph Records

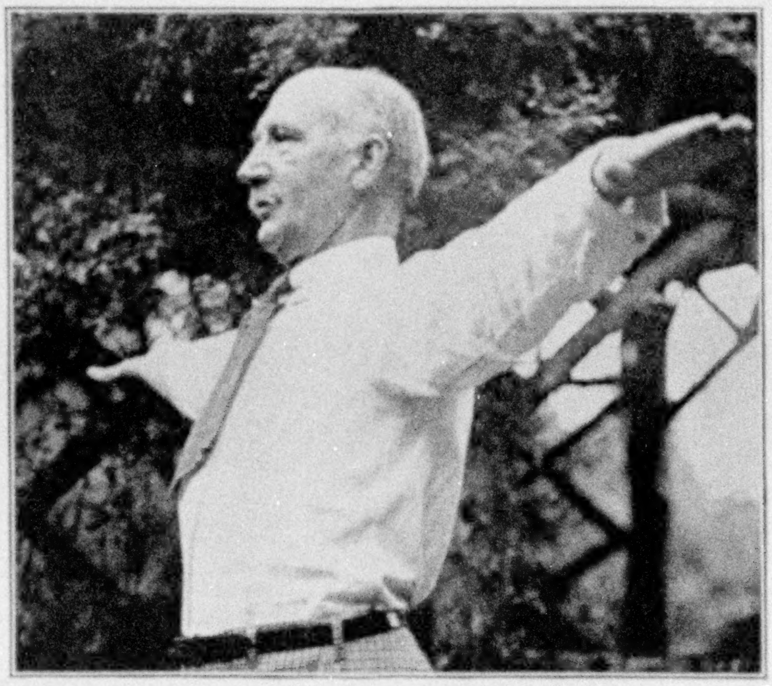
ONE night during the war I was sitting in the smoking compartment of a Pullman sleeping-car when a man came in and said, "Mr. Camp?"

I told him I was, and he continued, "Well, there is a man in the car here who is in very bad shape, and we wondered if you could not do something for him."

"What is the matter?" I asked.

"This fellow is running up and down the aisle in his pajamas," the man said, "trying to get them to stop the train to let him get some dope, because he hasn't slept for four nights."

I went back in the car and found a man about 38 years old, white as a sheet, with a pulse of 110, and twitching all over. I learned that he had been managing a munitions plant and had broken down under the work, because he had transgressed all the laws of nature and given up all exercise, and had been working day and night.



WALTER CAMP

Originator of the Famous "Daily Dozen" System

"For God's sake," he said to me, "can't you put me to sleep? If somebody can only put me to sleep!" He was standing all bent over.

"Don't stand that way; stand this way!" I said, and I straightened him up and started putting him through a few exercises to stretch his body muscles. Pretty soon the color gradually began to come back into his face, and the twitching stopped. Then I said to him, "I am going to put you through the whole set of 'Daily Dozen' exercises once. Then I am going to send you back to your berth."

So I did that and didn't hear any more from him; but the next morning he came to me in the dining-car and said:

"You don't leave this train until you've taught me those exercises. I slept last night for the first time in five nights."

I taught him the "Daily Dozen," and two months later I got a letter from him, saying:

"My dear good Samaritan, I am back on the job all right again, and I am teaching everybody those exercises.

The "Daily Dozen" was originally devised as a setting-up drill for picked young men—the boys who were in training during the war. But its greatest value is for those men and women who are hemmed in between four walls most of the time and are beginning to realize that their bodies aren't as fit as their minds.

I applied it to middle-aged men, and men past middle age, too, during the war, including members of the Cabinet in Washington, who simply had to do much more work than they were used to doing without breaking down. In the "Daily Dozen" I soon found I had something that would actually increase their reserve power. They grew progressively more fit as we went along.

People think that they can take an orgy of exercise and make up for a long period of neglect when they do not take any exercise at all. You cannot do that. Do not go to a gymnasium. That tires you to death. That is old-fashioned. We do not have to do that any more. A man or woman can keep himself or herself fit with six or seven minutes a day. There is no reason why a man at 50 or 60 or 70 should not be supple; and if he is supple, then he grows old very slowly—*but the place where he must look after himself is in his body muscles.—Walter Camp.*

Mr. Camp is famous as a great Yale football coach and athletic authority, but few people know that he is also a successful business man. Although sixty years old, he is stronger and more supple than most younger men, and he uses his own "Daily Dozen" exercises regularly in order to remain so.

Since the war, the "Daily Dozen" has been making busy men and women fit and keeping them so—and the exercises are now proving more

efficient than ever—due to a great improvement in the system. This is it:

With Mr. Camp's special permission, all the twelve exercises have been set to music—on phonograph records that can be played on any disc machine.

In addition, a chart is furnished for each exercise—showing by actual photographs the exact movements to make for every one of the "commands"—which are given by a voice speaking on the record. So now you can make your phonograph keep you fit.

With these records and charts a man or woman can keep himself or herself fit with only a few minutes' exercise a day—and it is so much fun that some of the "Daily Dozen" fans go through the whole twelve exercises to the spirited music *twice* every morning—just as a matter of sheer enjoyment.

Mr. Camp says that the place where we must look after ourselves is in *the body or the trunk muscles.*

This is so because we are all in reality "caged animals." When a man stops hunting and fishing for his food and earns it sitting at a desk he becomes a captive animal—just as much as a lion or a tiger in the Zoo—and his trunk muscles deteriorate because they cease to be used. Then comes constipation and other troubles which *savage* men never have.

The remedy is to imitate the "exercises" of caged animals. *They* know how to keep themselves fit—and they do it, too.

How? Simply by constantly stretching and turning and twisting the trunk or body muscles! When Mr. Camp discovered that men and women can imitate the caged animals with enormous profit to their health, he devised the "Daily Dozen"—to provide this indispensable exercise—the only exercise people really need to keep in proper condition.

Many people have written to the Health Builders telling them of the benefits they have received. Here is part of one letter:

> "We wish to express our satisfaction and delight with our set of records and exercises. Our entire family of eight, including the maid, are taking them. The children are fascinated with them and bring the neighbors' children to do them.—MRS. CHARLES C. HICKISCH, 828 Vine St., La Crosse, Wis."

The Health Builders' improved system now includes the entire "Daily Dozen" exercises, set to specially selected music, on large 10-inch double-disc phonograph records; twelve handsome charts, printed in two colors, with over sixty actual photographs illustrating each movement of each exercise; and a little book by Walter Camp explaining the new principles of his famous system.

Any man or woman who exercises with this system regularly, even if it is only six or seven minutes a day, will feel better and have more endurance and "pep" than they have had since they were in their 'teens—and they will find those few minutes the best fun of their day.

Try the Complete System Free—For Five Days

You cannot fully appreciate the real joy of doing the "Daily Dozen" to music until you try it. So we want to send you, absolutely free for five days, the "Daily Dozen" on phonograph records and charts illustrating the movements. These full-size, ten-inch, double-disc records, playable on any disc machine, contain the complete Daily Dozen Exercises, and the 60 actual photographs accompanying the records show clearly every movement that will put renewed vigor and glowing health into your body—with only ten minutes' fun a day. A beautiful record-album comes free with the set.

No need to send any money. Simply mail the coupon below and get Walter Camp's "Daily Dozen" on phonograph records. Enjoy the records for five days, and if for any reason you are not satisfied, return them and you owe nothing. But if you decide to keep the records, you can pay for them at the easy rate of only $2.50 down, and $2 a month for four months until the sum of $10.50 is paid. Thousands of people have paid $15 for the same system, but you can now get it for only $10.50 if you act at once.

Simply mail the coupon and see for yourself at our expense, the new, easy, pleasant way to keep fit. You'll feel better, look better, and have more endurance and "pep" than you ever had in years—and you'll find it's fun to exercise to music! Don't put off getting this remarkable system that will add years to your life and make you happier by keeping you in glowing health. Mail the coupon today. Address,

HEALTH BUILDERS, Inc.
Dept. 1811 Garden City, N. Y.

FIVE-DAY TRIAL COUPON

HEALTH BUILDERS, Inc.,
Dept. 1811, Garden City, N. Y.

Please send me for five days' Free Trial at your expense the Complete Health Builder Series containing Walter Camp's entire Daily Dozen on five double-disc ten-inch records, the 60 actual photographs, and the beautiful record-album. If for any reason I am not satisfied with the system, I may return it to you and will owe you nothing. But if I decide to keep it, I will send you $2.50 in five days (as the first payment) and agree to pay $2 a month for four months until the total of $10.50 is paid.

Name ____________________
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If you prefer to take advantage of our cash price send only $10.00.

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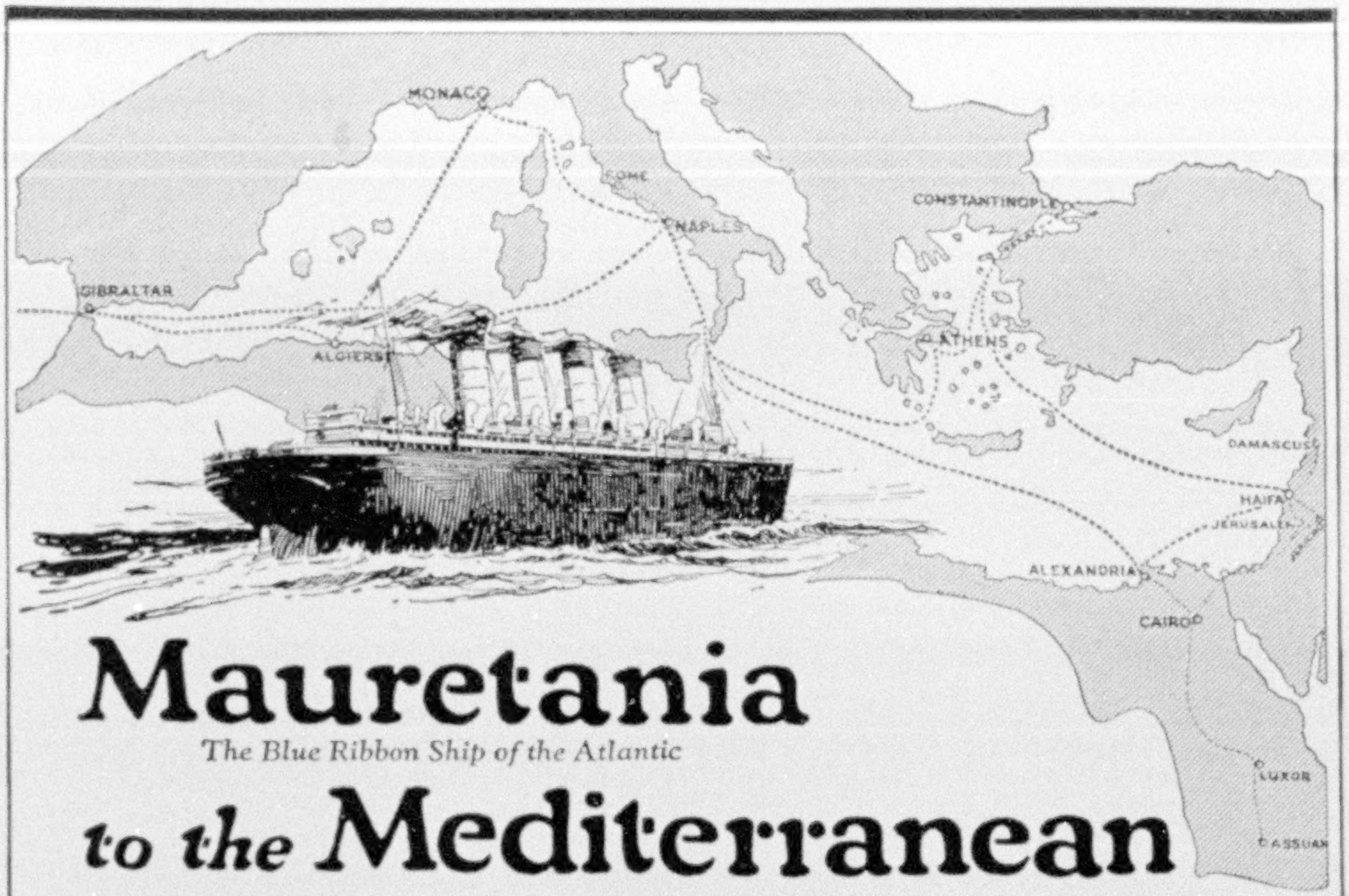

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The Luxury Cruise—Next Winter

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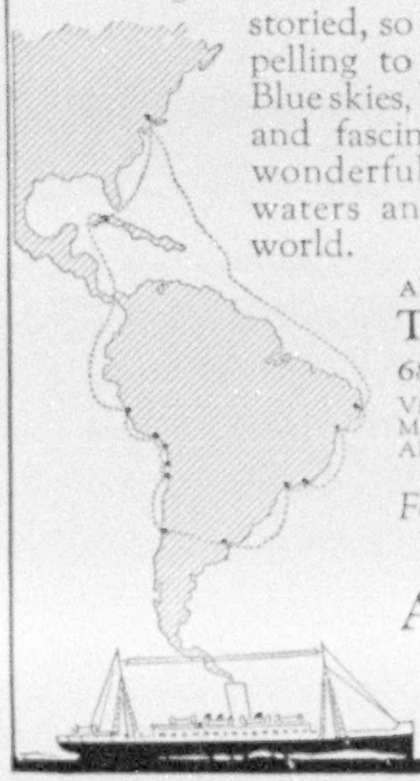
All that can be said of luxury in travel on sea combined with speed and perfect ship management is expressed in that magical word **Mauretania.**

And as for the **Mediterranean**—no single word is so full of meaning, so storied, so pictured, so compelling to the imagination. Blue skies, blue waters, sunny and fascinating. The most wonderful of all cruising waters and shores in the world.



Together these two words, MAURETANIA—MEDITERRANEAN, picture an ideal—a dream made real, under the experienced Travel management of the American Express Travel Department in full cooperation with the Cunard Line—with all this means in service and cuisine.

Inland excursions planned from all ports of call—Madeira—Gibraltar—Algiers—Monte Carlo—Italy, Rome, Naples — the Dardanelles — Constantinople—Greece, Athens, Eleusis, Marathon—Palestine, Haifa, Jerusalem, Bethlehem, Nazareth, Tiberias, Damascus — Egypt, Cairo, Memphis, and up the Nile to Luxor, Karnak, Thebes, Assuan and the First Cataract. This special cruise of the Mauretania will long be remembered as an unique epoch in Cruising history.

ALSO:

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If the Prince of Wales swapped clothes with a beggar

SUPPOSE tomorrow morning should find the most popular Prince in English history in rags on a park bench.

Would he be spared the surly "Move on, you!" of the vigilant patrolman? Would the loiterer beside him believe his story?

You yourself, walking by—would you recognize him?

That is the theme of a remarkable story—the fascinating adventures of the heir to the English throne who changed places with a squalid urchin of the streets. There is no other story like it in the language. There is no other writer who could have told it as it is told by Mark Twain.

As far back as you can remember you have heard of Mark Twain as a story-teller. You have doubtless read many of his imperishable works.

But do you know the wide range of his writings? Do you know that Mark Twain, associated in everybody's mind as a humorous writer, was the author of as sublimely beautiful English as has ever been penned?

A free book has been printed for lovers of Mark Twain and those who wish to know him better. It tells little-known facts concerning the life and works of America's most versatile writer, and describes the new complete uniform edition of Mark Twain. The coupon below will bring the booklet without obligation to any reader of this Magazine who is seriously interested in the

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of the works of
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"SAMARIA"

January 24 to May 31, 1923
Sailing Eastward from New York

Like a story from classic mythology—like reading the tale of an argo that hove anchor and sailed clear around the globe in quest of the wonders and mysteries, the splendors and beauties of the world—finding them in their full glory while Spring was waking in each land!

Just such an experience is offered you by our *Golden Jubilee Cruise*, which commemorates the 50th year since Thomas Cook, the founder of our organization, conducted the first tour around the world. A superlative itinerary includes picturesque Mediterranean cities, alluring Egypt—four weeks in India, Dutch East Indies, and Straits Settlements—Saigon in Indo-China, the Philippines and China—two weeks in Spring-crowned Japan—Hawaii and then homeward via San Francisco and Panama Canal—127 joyous, crowded days.

CRUISE LIMITED TO 400 GUESTS.
Assuring the utmost in comfort, privacy, personal attention and service

TO THE MEDITERRANEAN

by Specially Chartered Luxurious New White Star Liner

"HOMERIC"

Sailing January 20
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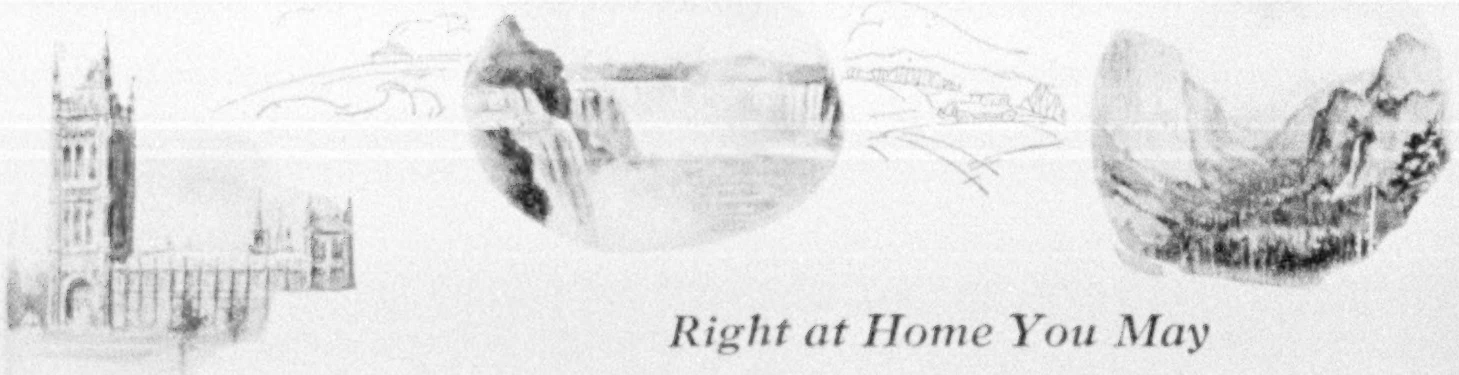

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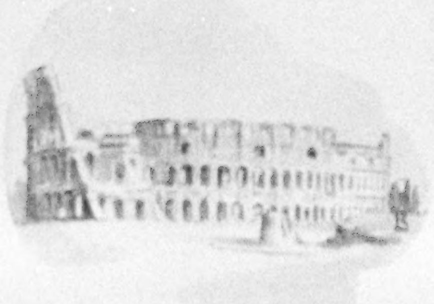

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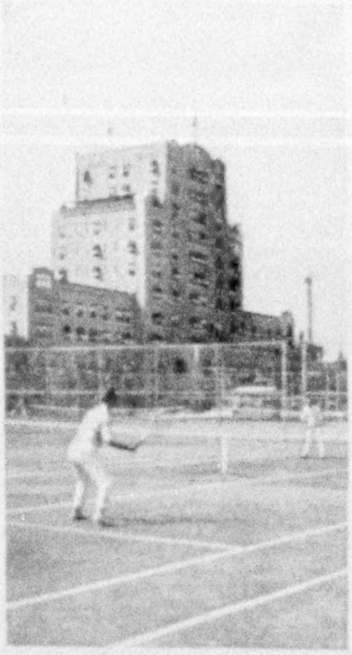

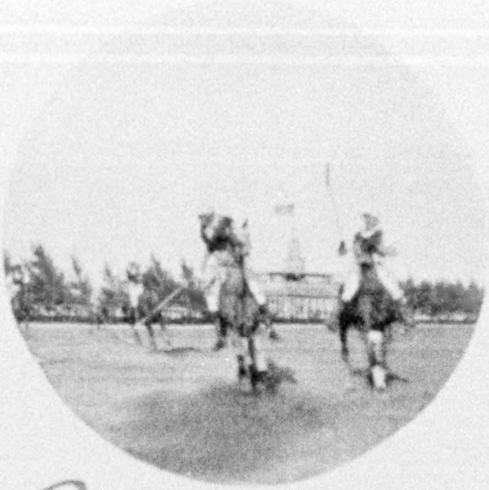

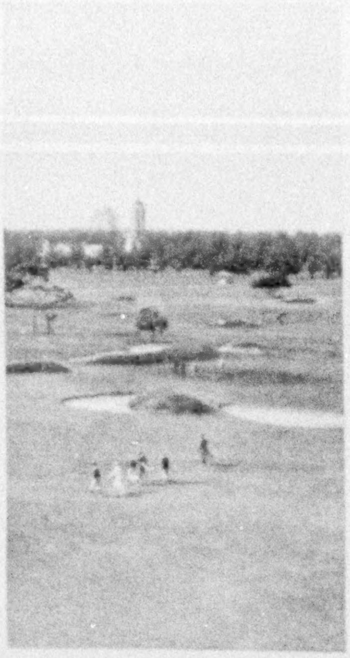

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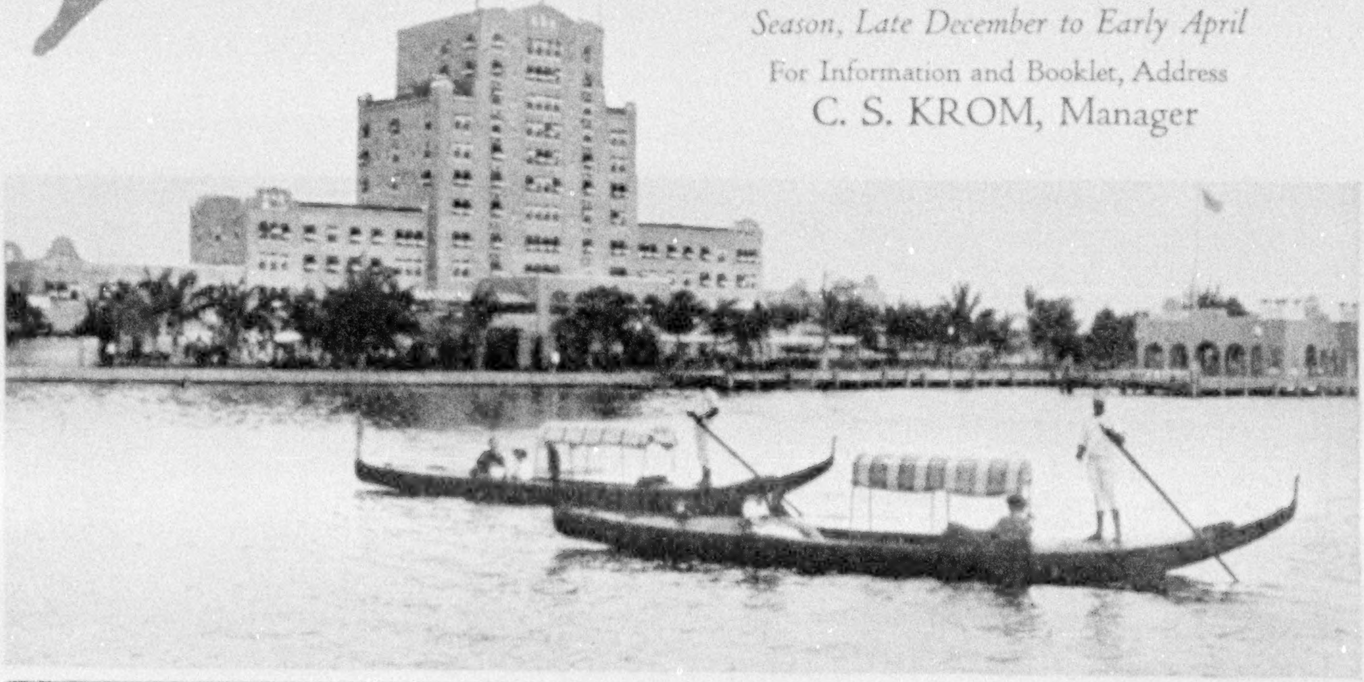

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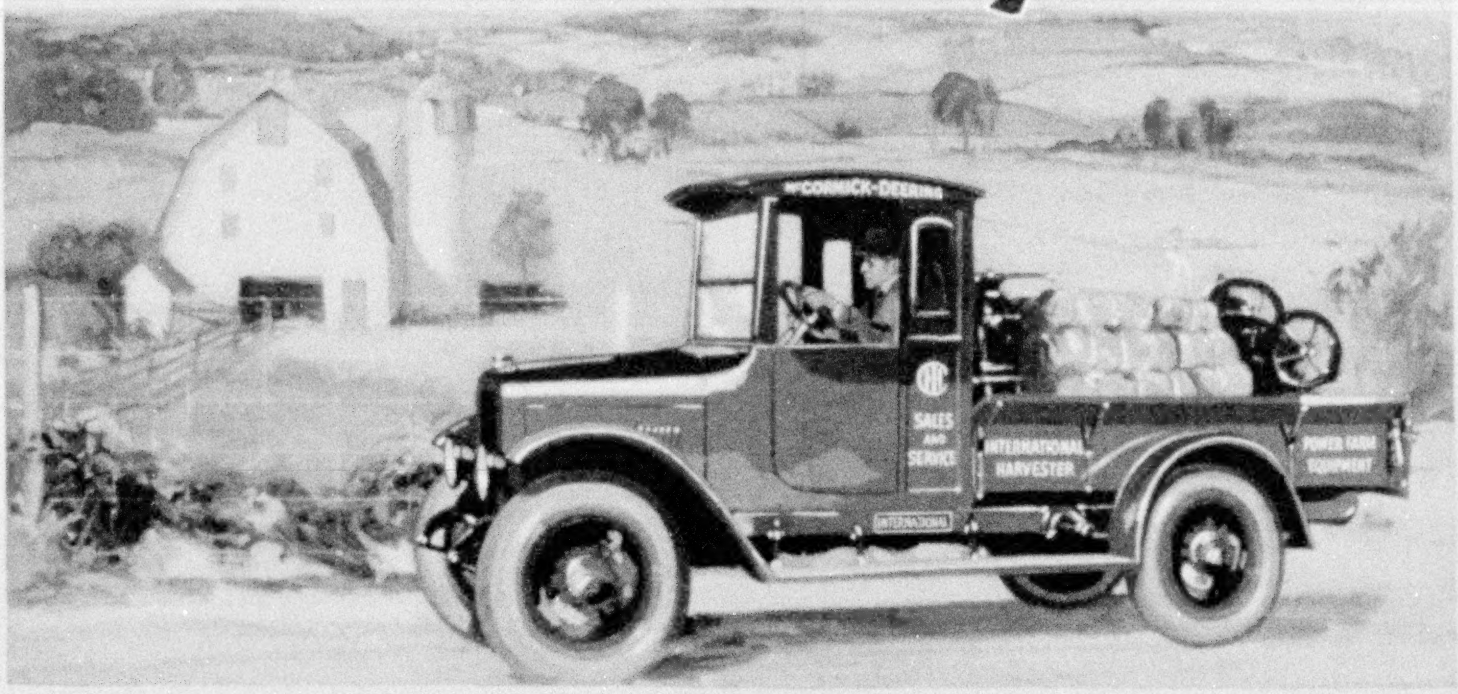

The Nation's Service Truck

IF you could get a long-range bird's-eye view of this vast country of ours, the landscape would lie before you like a patchwork quilt of fields. From ocean to ocean the millions of fertile farms lie side by side, eternally growing food-stuffs for human beings.

See the many denser centers of activity, with smoke plumes rising everywhere like tufts on the patchwork quilt. These are the cities, the crowded places where live Manufacture and Commerce and Traffic. These thrive only when Agriculture smiles, for Agriculture mothers the world. Our nation's life grows up out of the soil —let no man forget that.

Agriculture smiles her best when Service is at her command. Her millions upon millions of farm machines must be kept at work. Her power equipment must not fail. Her methods must keep pace with the times.

Now, if you will look again, very closely down on the scene, you will see a far-flung network of service establishments for Agriculture. These are the farm machine headquarters of McCormick-Deering dealers, men who have a broad conception of service in business and who carry it right to the homes of their customers. Thousands of these dealers have equipped themselves with International Speed Trucks like the one pictured on this page—trucks which, because of their flaming red color, speed, and snappy lines, are popularly called "Red Babies."

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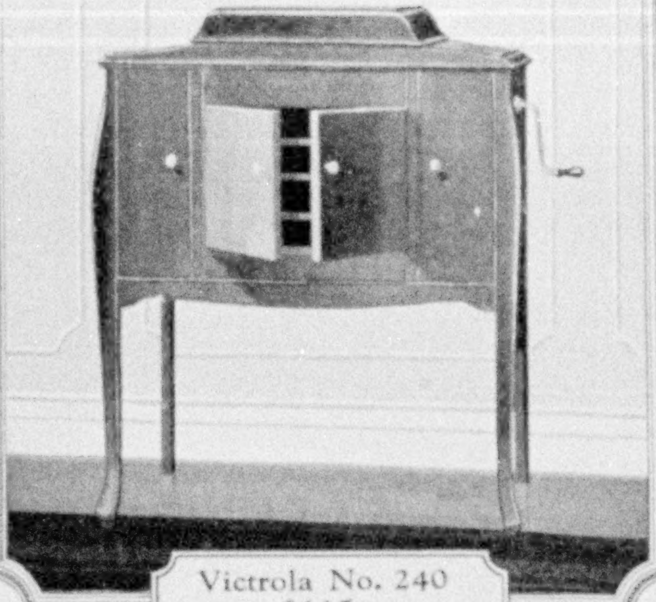

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ADVENTURING DOWN THE WEST COAST OF MEXICO

By Herbert Corey

Author of "Across the Equator with the American Navy," "On the Monastir Road," "Andorra, a Unique Republic," etc., in the National Geographic Magazine

With Illustrations from Photographs by Clifton Adams, Staff Photographer, National Geographic Magazine

WE TRAMPED about Nogales on the score of little errands that always precede the entrance to a new country. Before starting down Mexico's west coast we had things to buy, passports to be seen to, and men to talk with.

Our manners began to improve. Before we knew it, we were beginning our speeches with "Señor" instead of "Hey!" We became addicts of hat-tipping. When we said good-bye to an official, we lifted our hats at his desk and shook hands. He followed us to the door and shook hands again. In the street we turned once more and lifted our hats.

Before we left Mexico our inherent manliness had become so softened and perverted that we formed the habit of bowing when we entered a restaurant or railway car:

"Permit us?" we asked.

The person nearest the door would smile and murmur the permission. It did not mean anything, of course. We knew all the time that he was helpless. He could not have kept us out. But, somehow, the little courtesies lessened the friction of traveling in a strange country.

Our better selves kept telling us that this politeness was an evidence of Latin insincerity. We knew that our occasional hosts did not mean it when they told us that their houses or horses or spurs or blankets were ours. Yet it broke down our resistance. Long after I returned to New York I found myself saying, in sheer absent-mindedness, to a bus conductor:

"Thank you."

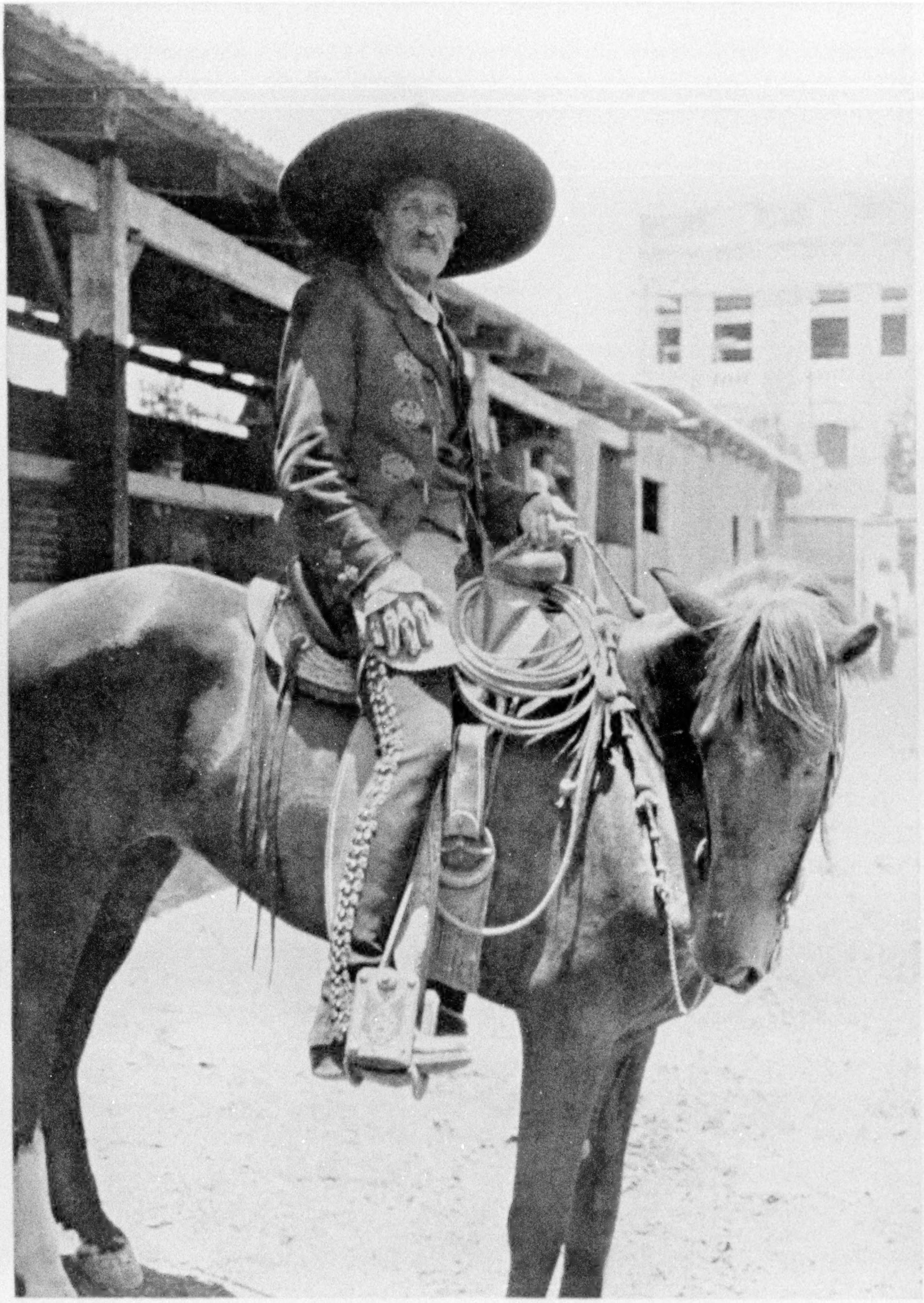
"What for?" he very naturally asked. "I didn't do anything for you."

It seems time to lay more secure bedplates for this article. The reader has the right to know where we were going and why. Rejoicings over manners must no longer be permitted to sidetrack informative matter, but I must have my enthusiasms. One wanders in Mexico in a sort of a haze of history and tradition, and gold and pearls, and opulent futures and blood. It is wholly entrancing.

LEGENDS AND STORIES OF LOST MINES

My own emotional indulgence was in listening to the stories of lost mines. Every one on the coast seems to have at least one lost mine. Some rest on tradition only, while others have a sure documentary foundation.

There is the tale of the mine near Arispe, for instance, the entrance to



THE RETURN OF THE CHARRO

Ten years ago this typical charro costume was rarely seen in Mexico, except in the more distant places, where the influence of the early Spanish conquerors was still strong. Now there are several flourishing charro societies, the purpose of which is to revive the use of these picturesque old-time costumes.

THE FAMILY CHICKEN COMES TO TOWN

The Mexican Indian lives upon a margin unbelievably narrow to more fortunate folk. In the picture the man has brought one chicken to the city market. He may have walked a dozen miles to sell it. He will sleep uncomplainingly on the cold stones under an archway and he will not go home until he has sold the fowl. The few pennies obtained for it will establish the domestic exchequer on a firm, if impermanent, foundation.

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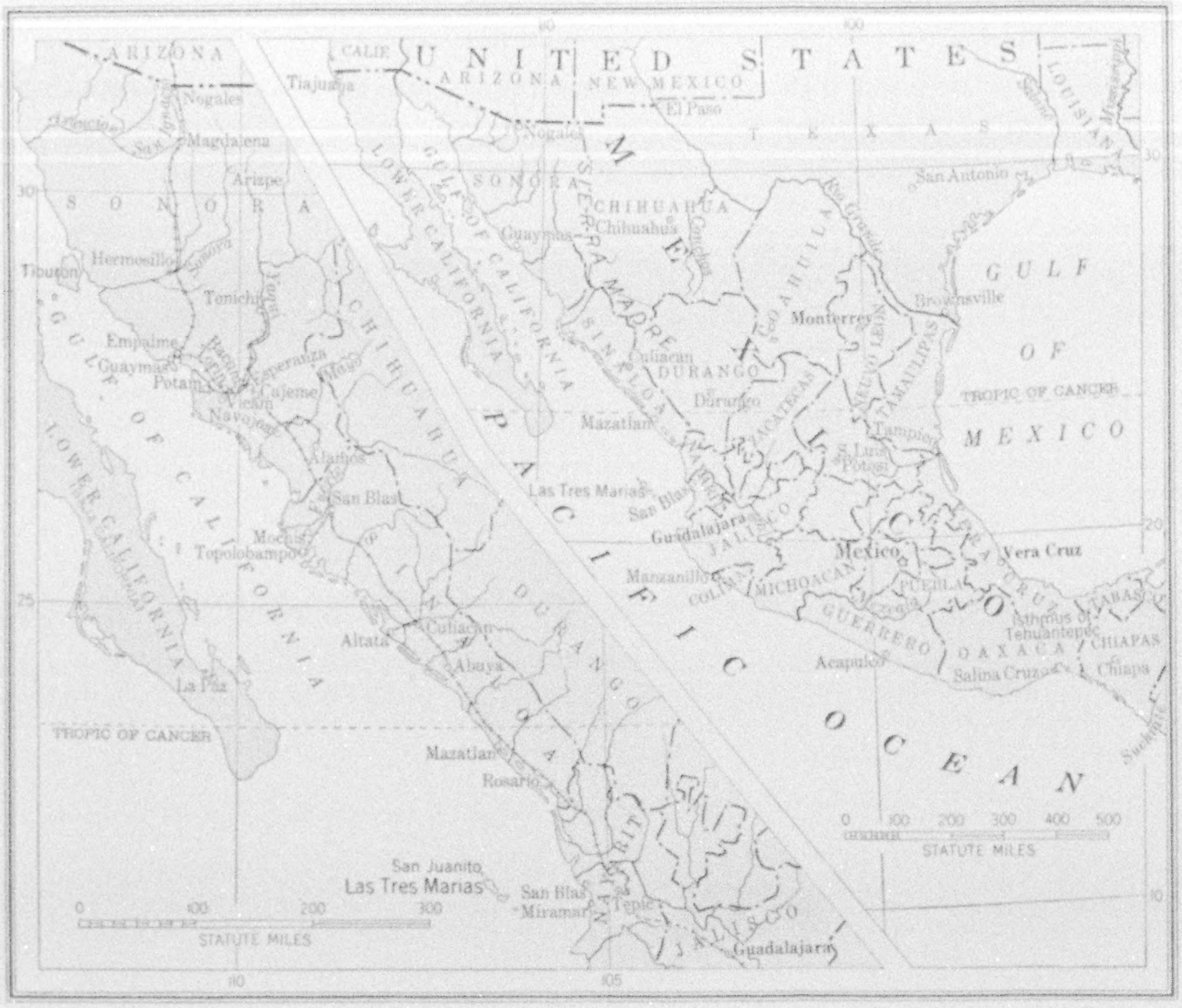


Drawn by James M. Darley

THE WEST COAST OF MEXICO

"The nine States of Sonora, Sinaloa, Nayarit, Jalisco, Guerrero, Colima, Michoacan, Oaxaca, and Chiapas rim the Pacific coast-line, while Durango corners over the Sierra Madres, so that it may be considered a west-coast State" (see text, page 453).

which was concealed by the Spanish friars just before they were wiped out by a reversion of their converts to ancient form.

A century or so later a searcher in the monastic archives in Madrid found the story. By this time the very existence of the old mine had been forgotten. "One can see the opening of the tunnel from the door of the church," the priestly writing ran.

Scores of prospectors took sights from the doorway without success. Then a bit of plaster fell away from an old wall and revealed a forgotten door, bricked up and covered over.

The one old-timer who remembered the legend brought out his glasses and searched the hills. Sure enough, far up on the side of a canyon he saw something which seemed worth investigating. It was the gateway to the lost mine.

THE WEST COAST HAS BEEN SOMEWHAT IMMUNE TO POLITICAL FEVERS

The west coast of Mexico is approximately two thousand miles long, from Tiajuana, on the United States border, to the river Suchiate, below the Isthmus of Tehuantepec, which marks the border of Guatemala.

For a great part of this length it is cut off from the central portion of Mexico by the Sierra Madres. There are plenty of passes, of course, but the barrier exists.

As one consequence of this partial isolation, the west coast relationship to the United States is somewhat closer than is that of the remainder of Mexico. Amer-

ican goods can be transported easily to the west coast, either by sea or by land, while in return the agricultural products of the coast find a ready market with us.

That mountainous wall has insured the western coast a partial immunity, likewise, from the high political fevers that have from time to time ravaged the rest of the land.

The nine States of Sonora, Sinaloa, Nayarit, Jalisco, Guerrero, Colima, Michoacan, Oaxaca, and Chiapas rim the Pacific coast-line, while Durango corners over the Sierra Madres, so that it may be considered in part a west-coast State.

The peninsula of Lower California—almost as large in itself as is the mainland of Italy down to the heel of the boot—lies across the Gulf of California, which is one of the largest gulfs in the world, and must be considered a part of the entity known as the west coast.

Mexican statistics are either non-existent or unreliable, but it is safe to say that the west coast as outlined contains almost one-half of the superficial area of the Republic of Mexico and fully one-third of the Mexican population. Yet comparatively little is known of it. Revolution, politics, oil, and ease of access have directed attention toward the central portion and eastern half of the country.

GRIM SPANISH ADVENTURERS WERE MEN OF HIGH COURAGE

One starts down the west coast through the State of Sonora. If one is not a seasoned traveler the first impulse is to turn back. This enormous expanse of blowing sand, white rock, and burning sun is depressing unless one has a little history, a little imagination, and some liking for the desert.

Sonora is the second largest State in Mexico and one of the richest mining districts in the world; but, gazing out of the car window, these facts at first leave one cold.

The desert hides its best. Far back in the opal-tinted hills are green valleys and golden mines. The stranger sees only the numb misery of the half-naked Indians, sheltering like animals in the remains of 'dobe huts that have been ruined in the fighting of the past ten years.

The wide plains are empty of life. The herds have gone to feed the revolutions.

Cabeza de Vaca was the first Spaniard to find gold in Sonora, on his trip to the Florida Everglades in the early sixteenth century. It is not the fact that he found gold that interests the traveler, but that he was able to march at all through these inhospitable wilds.

The mere thought of the journey is frightening. The Spaniards did not know the trail; they were encompassed about by the most dangerous Indians in Mexico—for the Yaqui, cousin of the Apache, made this his home; and they were burdened by heavy armor in an arid and savage land.

The longer one travels through Mexico the higher mounts one's admiration for these grim old adventurers. No doubt they were as brutal as they have been charged with being; but it may be questioned whether their like can be found in the history of the world for sheer, stubborn, furious courage.

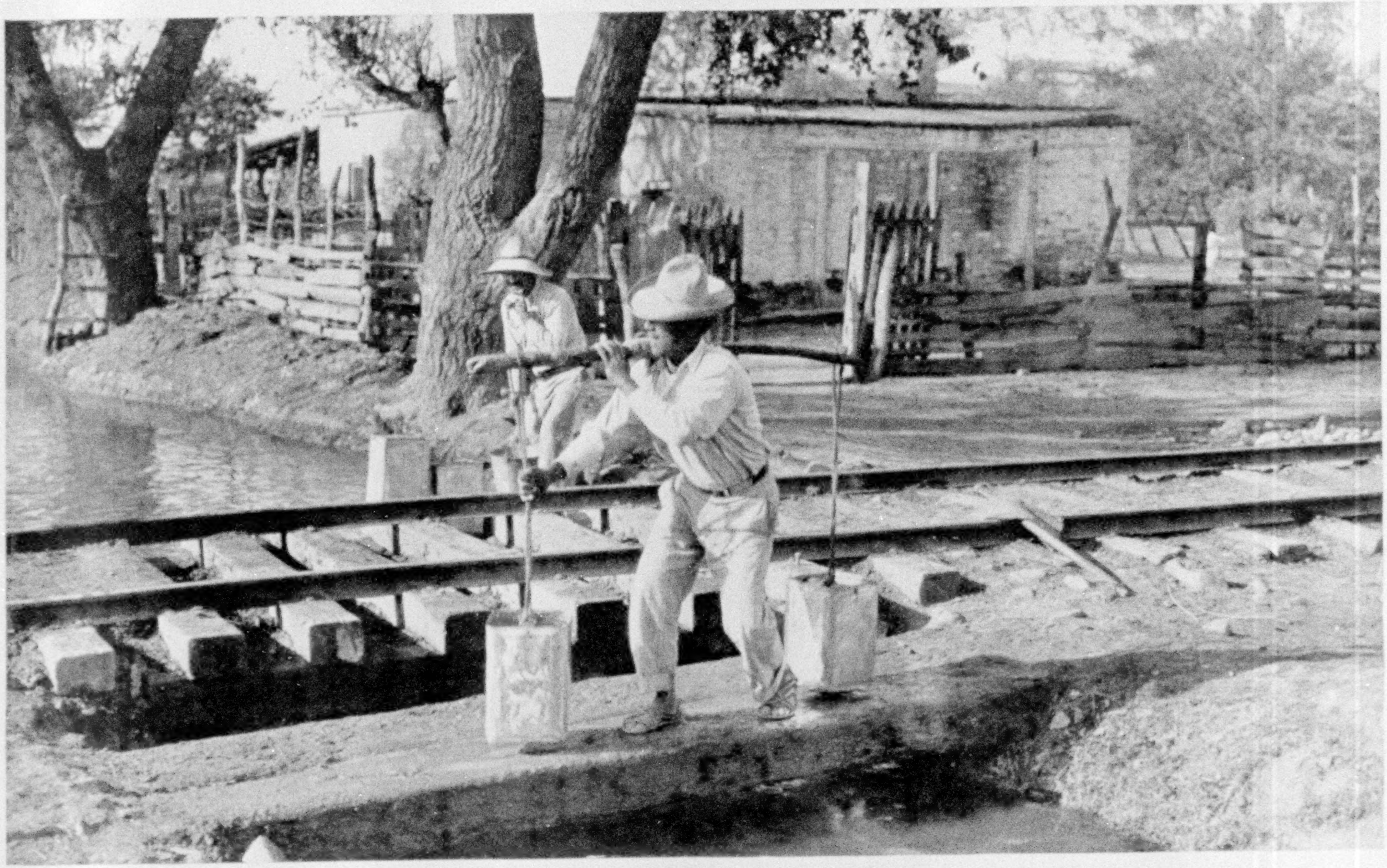
To-day, Sonora must present much the same aspect that it offered to the Cow's Head—the literal translation of Cabeza de Vaca—and his companions. It is hard, glittering, and superficially inhospitable; yet in the folds of the hills are hidden the finest churches in North America—churches as distinguished from cathedrals—whose altars were once plated with gold and silver and hung with jewels.

They are abandoned in great part, it is true. Many of those that are still open to worshipers are served only at intervals by priests who ride muleback over a wide circle of weeks.

It was because of these old churches that the Sonoran mines were opened three centuries ago. The friars built them in villages that at their best cannot have maintained more than a few hundred poor Indians, and sacked the treasures of the hills for the glorification of the Cross.

ENTERING THE HORNED-TOAD BELT

One establishes one's first real contact with the land at Magdalena. It is but a small, soiled, dusty Indian town clustered about an old church. It is on the edge of the desert, sun baked, specked with the varying greens of mesquite and



THE WATER PEON AT HIS WORK

Without the square oil-can invented by Americans, it sometimes seems that the domestic processes of Mexico would cease. Wherever one goes, this invaluable utensil is in use. It is by turn stove, kitchen kettle, water-jar, and universal safe for the storage of food.

EVEN THE CATTLE TAKE A MIDDAY SIESTA

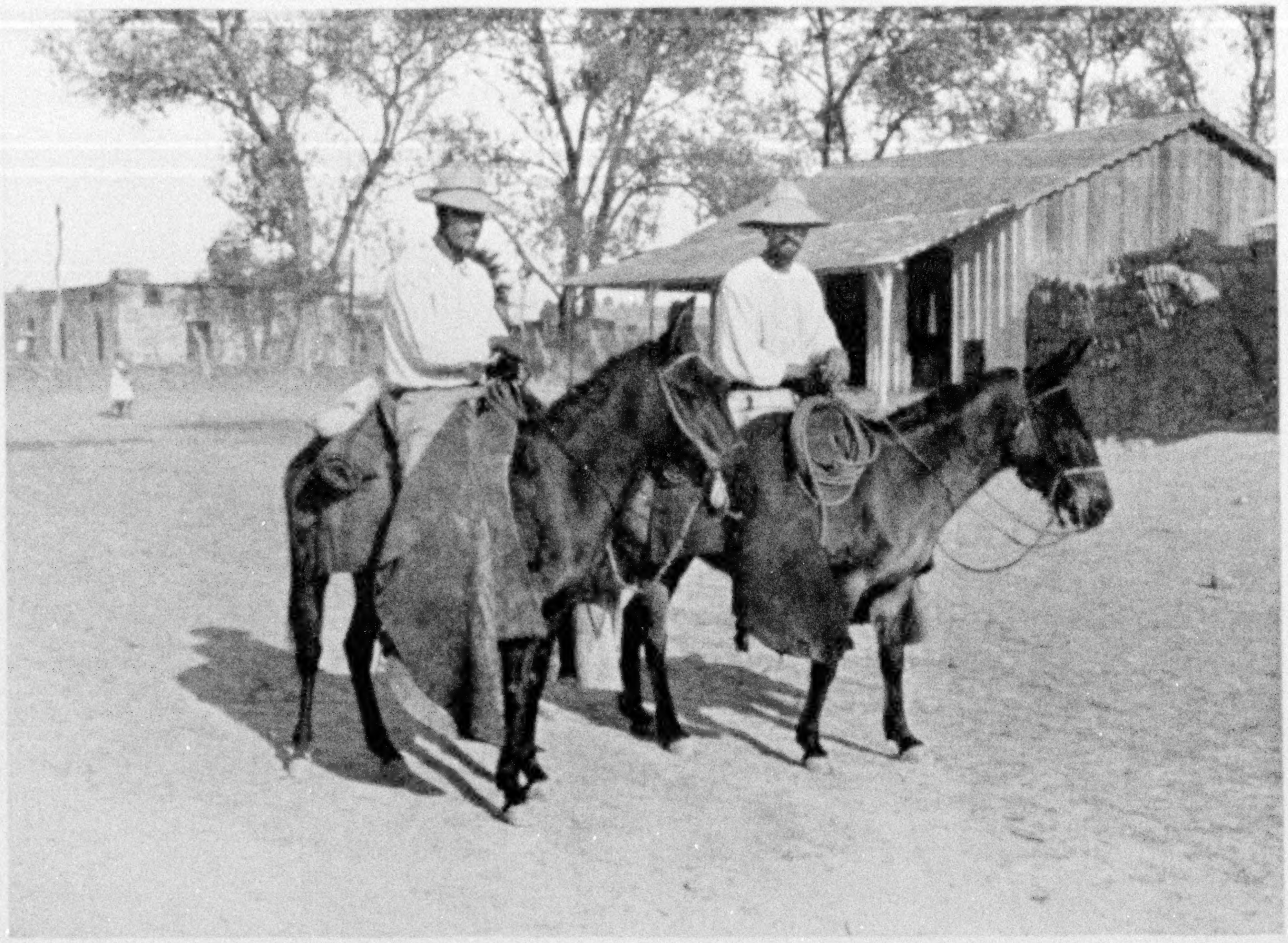
War and revolution have almost destroyed the immense herds of cattle which once roamed the States of the west coast of Mexico. Ten years ago it is probable that the horned beasts were numbered literally by the million. To-day a sight such as this is rare.

BASEBALL HAS CONQUERED BULLFIGHTING IN SONORA

There are bullfights held in Sonora occasionally, for the habit of years is hard to break; but the State authorities frown upon it, and little by little the American game of baseball is taking its place. These girls of Guaymas are as enthusiastic "fans" as those of any American town.

STURDY "GOBS" OF THE MEXICAN NAVY

Somehow a sailor always looks a sailor, no matter under what flag. This detachment of Mexican "gobs" has just returned from a detail on the peninsula of Lower California. The youngster at the extreme right is but thirteen years old, but his mates declared him a good fighting man.



PROTECTIVE ARMOR AGAINST THE THORNS OF THE BUSH

At Los Mochis, in the State of Sinaloa, where there is a large and prosperous American settlement, the bush-riders make use of a saddle equipped with flaps of soft leather. These are thrown over the knees to protect the horseman from the curved thorns when he is out upon a round-up.

manzanita and cactus, rimmed about by blue-tipped, silver-laden hills.

The old-timers call this "the horned-toad belt."

One thinks the desert unpopulated. One rides for miles without seeing more than a 'dobe hut or a wandering Indian behind a burro, or perhaps a twinkling light at night.

Yet during the fiesta of St. Francis Xavier 40,000 Indians swarm into Magdalena. At night they roll in their blankets and sleep in heaps in the dust of the street. By day they pray to the Saint and eat their everlasting cakes.

It was from the vicinity of Magdalena that the golden treasure came which so aroused Spanish cupidity at the court of Montezuma. Long before Cortez came, these mines had paid a regular tribute to the Aztec rulers.

It was from them that much of the gold was taken with which the treasure-ships were laden at Acapulco for the voyage to Spain. Too much of the gold, in fact, for the Spanish crown demanded so large a proportion of the spoils that the disgusted Jesuits finally reported the mines as "lost." They were not worked again until the advent of Americans, in 1817.

From some of these mines silver was taken out literally in plates. One nugget was found which weighed 525 pounds, and the priestly chronicler reports that "it was swung on a litter of tree branches, between two mules."

EATING IS A CONTINUOUS OCCUPATION FOR TRAVELING MEXICANS

Our friends had seemed to feel that in visiting Mexico we were taking our lives in our hands with our fingers well buttered; yet the ride southward from Nogales was as unemotional as that from Washington to Baltimore.

Now and then, as the train stopped at a village hidden in the night, we peeped

UNCHANGED FROM THE DAYS OF PYRAMID-BUILDING

This ancient plowing equipment can probably trace its lineage to the first use of the ox-yoke, and it has not been changed since. The plow is but a pointed stick attached to the pole which is lashed to the yoke. Sometimes it is shod with iron. The team is directed by means of the long goad which the plowman holds. When the day's work is ended he reverses the plow, hooks it over the yoke, and strolls home at the heels of his oxen, the end of the pole dragging in the dust.

from our berth windows to see silent Indians standing alongside the cars, each with a pitiful little tray of foodstuffs for sale. Later we became accustomed to this, but at first sight it was almost shocking.

Not one seemed to have more than a handful to offer the wakeful. Some had a few onions and some a half dozen soggy tamales, and now and then an enchilada. There were trays of the delicious Mexican sugared bread and baskets of oranges and apples.

Those who rode in the day coaches bought and bought and ate at each station. There is nothing the traveling Mexican likes to do more than to eat, apparently, and he has long ago discarded the theory that meals should follow a time schedule.

His plan is very simple. He eats at each station, and the more stations there are the more he eats.

Even so, it was difficult to see how the venders can make more than a meager living, for there is but one train a day for them to meet. It is doubtful if they average a daily turnover of twenty cents.

The explanation is, of course, that their living costs them exactly nothing. They live on the corn and beans they raise in their gardens, with now and then an egg from the unfed hens or a slice of pork from the hysterically rustling pigs. It is only the surplus above the day's needs that they sell.

It was a dark morning outside our car at Guaymas. The sun had not yet risen and the sea fog was rolling in from the great Gulf of California. We hardy northerners pulled our overcoats high about our ears and stepped out to a sight which later became familiar through constant repetition, but which never lost its picturesque appeal.

Candles twinkled everywhere over tiny, white-clothed tables on which a few

dishes of food were offered for sale. Behind each table sat the Indian proprietress.

The patrons were for the most part peons, clothed in thin cotton garments, pajama fashion, sometimes with sandals, sometimes barefooted, threadbare blankets pulled up high about their ears, their faces romantically hidden beneath the brims of their immense hats.

It was our introduction to the Mexican habit of eating and sleeping out-of-doors. Somehow, the wind is tempered to these partially shorn lambs.

No matter in what part of the Republic we might be, the flames of the candles in these little open-air restaurants seemed to rise straight up, as though no vagrom breeze ever ruffled them.

The night air might be cool to us in our three-piece, all-wool suits, under our light overcoats, but the peon is impervious to discomfort. He rarely shivers. When he gets ready to go to bed, he selects the nearest wall and curls down upon the stones of the street.

In the Yaqui country we often saw groups of Indians asleep star-fashion about a fire, heads out, feet in. A light blanket serves as cloak by day and bed by night.

THE "CARGADOR" IS A HUMAN FURNITURE VAN

The *cargadores* fell upon us in the dank fog. One of the conveniences of Mexico is that one never need carry anything anywhere. When a householder moves his domestic goods he does not call for a van. He walks down to the public square, seizes a pair of *mozos*, walks them home and puts them to work.

Two men will carry a piano. One man will if the transaction is attractive. Very large pieces are hoisted on two poles, and four men dog-trot away with them, flat-footed.

We stumbled over the rutted cart track that served as a street until we came to the hotel. The cargador led us up a flight of bare stairs, through a bare corridor looking upon a bare, wind-swept, dusty patio, into huge, bare, high-ceilinged rooms.

On the coast the summers are unbearably hot, and one must have open windows and fresh air to be comfortable. Rugs and curtains and doilies and tidies and the other woven, knitted, hooked and embroidered nuisances of life are forbidden.

At first glance, such a hotel room seems barren and cold. A bed draped with mosquito netting, a chair, a racked, twisted, dusty dresser, and no more.

Then one recalls the red Brussels carpets, worn gray in spots; the dingy window curtains hanging awry, behind which bluebottles buzz; the soot-spotted, wrinkled cloth on the stained pine dresser; the lumpy chairs and the sagging bed too often found in small-town hotels north of the line, and ceases to be too censorious.

SONORA A REGION OF INCREDIBLE FERTILITY

Right in front of the hotel stretched the bay. Once this was a town of vision and prosperity. It was one of the ports from which the peninsula of Lower California was fed, and in its fertile hinterland oranges and wheat, and corn and beans, and cattle and horses grew and flourished.

Before the farms were deserted, the herds killed off, and the mines shut down because of war, this town was full of business. Then the State of Sonora produced enough wheat to feed its own people and export some to Lower California and Sinaloa.

One realizes that the promise of desolation so richly made to onlookers from the car windows is not always kept. The valleys of the Sonora rivers—the Yaqui, the Asuncion, the San Ignacio, the Mayo, the Sonora, the Moctezuma, the San Miguel, to name a few—are absurdly fat. The adjective may seem ill chosen, but I can defend it.

The unwatered land seems infertile as a concrete pavement or the bottom of a gravel pit. It is bare, dusty, brown, burned. Then the farmer sprinkles a little seed, adds a little water, stirs it with a wooden plow, and it bursts into bloom. The crops possible to Sonora's bottoms are incredible.

But Guaymas told a story of war and loot. The bay had been silting up for years and, thanks to the stagnation which followed the collapse of the Diaz régime, it continued to silt up.

LUCIA OF PUEBLA IN HER GRANDMOTHER'S MANTILLA

The lover of the picturesque must regret that the graceful and becoming mantilla is rarely seen in Mexico nowadays. Among the upper classes Paris fashions have replaced the charming head-dresses of point lace which were brought from Spain centuries ago.

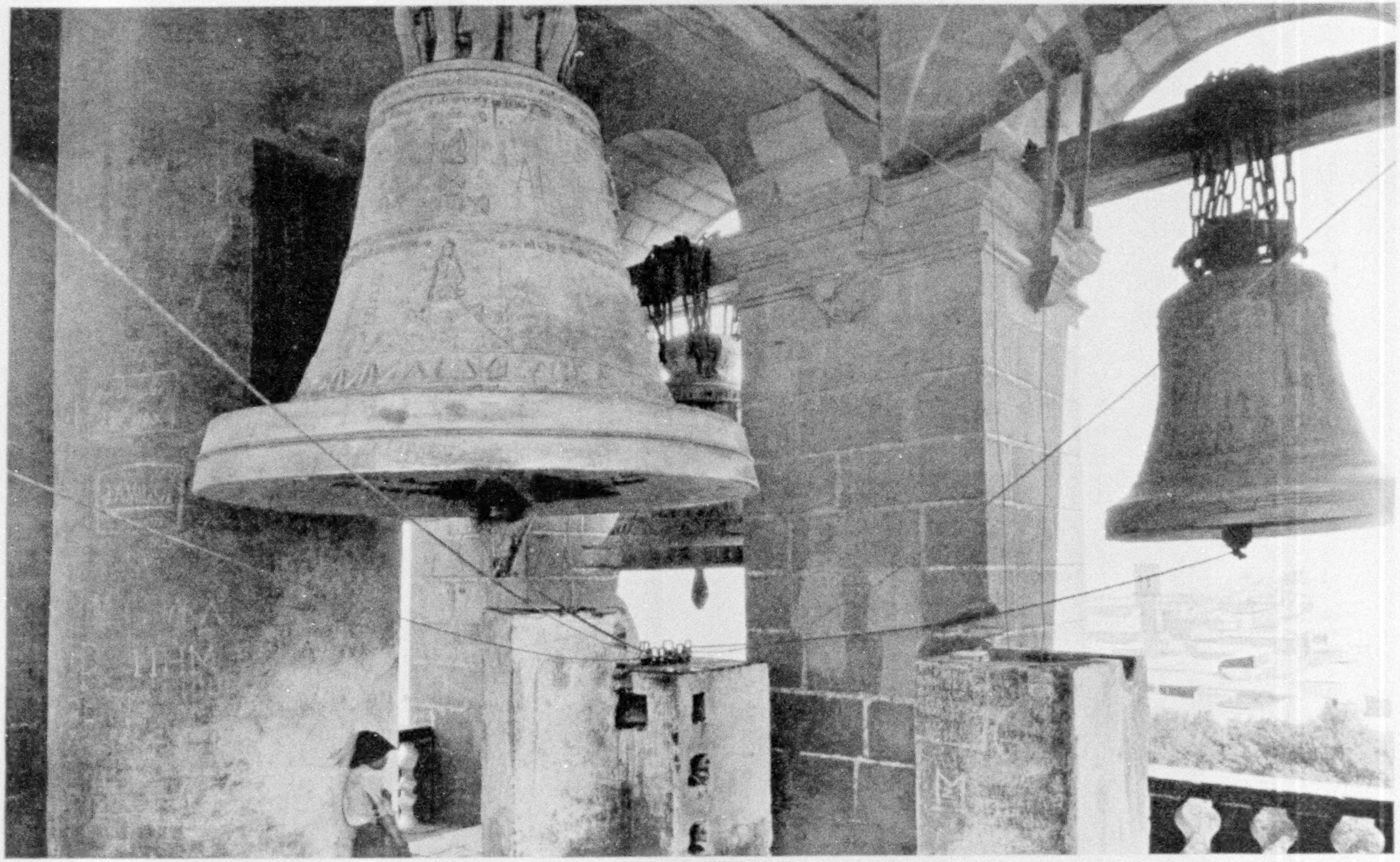
XUM

A MELANCHOLY REMINDER OF THE GLORY THAT ONCE WAS MEXICO'S

The superb old monastery of El Desierto, 30 miles from the city of Mexico, was once the most famous monastic retreat in the land. The first settlement was established there during Cortez's life, and the foundation stones of the present building were laid early in the seventeenth century. It fell into disuse during the reform period inaugurated by Benito Juarez. During Carranza's troubled rule the bandit Zapata occupied it with his troops and harried the outskirts of the capital.

THE MORNING MILK DELIVERY IN CULIACAN ROSALES

The juncture of modernism and antiquity may not be apparent at once in this picture. Yet the milk cans are of a late American model, while the burro's caparisons have hardly been changed since the day the Spaniard brought donkeys and pack saddles to New Spain. The little girl curled on the burro's shoulders—for burro addicts sit their animals at various angles—rides in each morning from the ranch to serve her customers. The man drawing a cupful will make his breakfast of a draught of milk, a light, well-browned, sugar-crusted biscuit, and be content.



A TYPICAL BELL TOWER IN NEW SPAIN

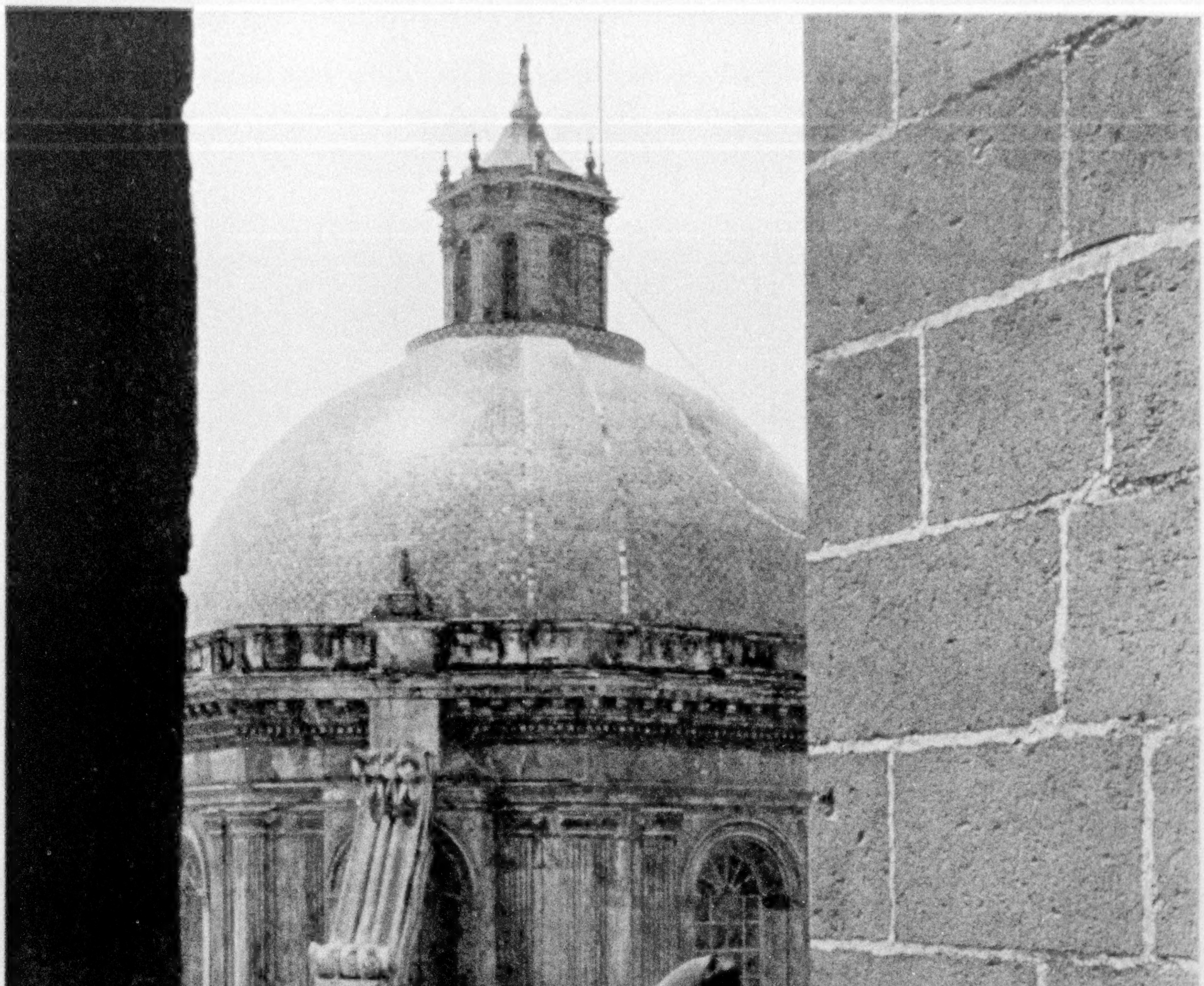
Some of these fine old bells were cast in Spain in the seventeenth century and hung in the tower of the Puebla Cathedral. They are not swung, but are struck by the clappers, to which rawhide ropes are attached, as shown in the picture. Puebla is still one of the most delightful towns in this colorful land. The Dominican fathers established here an industry in colored tile-making which has persisted in spite of wars and revolutions.

IN THE FLOATING GARDENS OF LAKE XOCHIMILCO

If graceful cotton robes were substituted for the pajama-like costume worn by the Mexican peon, and in place of the square-ended barge a great *pirogue* hollowed from a single log, this picture might serve for one familiar to Cortez's eyes. The "floating gardens" of Xochimilco no longer float, for the passing centuries have attached them firmly to the bottom of the lake. But the greater part of the vegetables offered in the markets of Mexico City still comes from this rural Venice.

FROM ONE CENTURY TO ANOTHER

The young lady of the picture is wearing a silken mantilla that was handed down to her by her grandmother's grandmother, who brought it from old Spain. She is standing on a brick-floored balcony over one of the cool, verdure-filled patios common to all the better-class houses in Mexico, the style of which was devised by Moorish architects long before Columbus crossed the sea.



IN THE CITY OF TILE-COVERED DOMES THAT GLISTEN IN THE SUN

The dome of the superb old cathedral in Puebla is covered with multicolored tiles, as are the domes of innumerable churches in that vicinity. Under the brilliant Mexican sun they sparkle with a radiance like polished steel. The interiors of most of these churches have been sacked and despoiled in Mexico's many wars, but the fine old domes remain as a proof of what existed in other days.

XUM

MODERNITY ON A MEXICAN BALCONY

To-day the Mexican señoritas dress precisely as do their sisters in New York, Paris, and Rome, due allowance being made as to the time element for a new fashion to reach remote cities so far from the center of things that one must, perhaps, travel thither on the back of a mule.

Then the World War and the internecine war came to interfere with the west coast trade, so that the gemlike little bay is now almost barren of vessels. On the farther side a German square-rigger, interned in 1914, was drying at its anchor. Here and there were smaller vessels.

A schooner from Lower California, once white, now sadly smudged, its sails torn and flapping, nudged into the little wharf. Its sailors lazily rolled ashore bales of dates—rawhide bales, sewed up in the form and size of flour barrels, as the friars had taught the Lower Californians to do two centuries ago. One discovers that these dates come from the groves planted by the friars themselves, and no better are grown in the world.

As for the rawhide in which they are baled, it is as much an article of daily use here as is barbed wire to the western farmer; or, rather, rawhide was. Nowadays there are so few cattle on the Sonora ranges that a tannery in Lower California imports its hides from the United States. Yet this tannery's leather is gold-medaled and blue-ribboned all over the world.

One hopes that this is but a temporary stagnancy in Guaymas, however. Mexican towns have the advantage—perhaps a doubtful one—of a longer perspective than our own cities, which jump from the pine shack to the skyscraper stage over night.

After all, the mines in the high Sierras still hold their hoards of gold and silver. Some time, when men work more and talk and fight a little less, the mule trains will again wind out of old Guaymas toward the rosy hills, and tall ships will again creep through the harbor gates, and Parisian buyers will again clamor for the pearls of La Paz. Then Guaymas will come back to its own.

For the moment one feels that one had best talk of the bay. Not very long, not very wide, hemmed in with hills that come down to the water's edge, the gateway invisible in their brown folds, it is one of the extraordinary beauty spots of the world.

The water has the hue and iridescence and sparkle of gems, changing and shifting and glittering anew as the light descends in varying reflections from the summits overhead.

It is a paradise for fishermen. The Indian fishers are forever sailing out in their log canoes or towing them back, fish-laden, along the shores. Unkind breezes and treacherous currents are unknown. The bay seems as gentle as those who use it.

Like everything else about Mexico, that statement must be qualified. The natives of Guaymas are gentle, but not far up the coast of the Gulf of California a savage tribe is dying.

One need not mourn the Seri Indians too much. They are naked, squalid, degenerate. They live in pits in the sand or under the branches of trees that they tie together with withes. They have no culture or traditions or kindness. They are non-producers of everything save hate.

It may be that another year or so will see the last of them. There can hardly be more than 100 left now, and each winter takes an increasing toll of their scrawny, starved, shivering bodies.*

But they have never struck their colors. They are the active enemies of every sentient being in the whole world.

LOWER CALIFORNIA AND ITS GREAT PEARL PORT

Across the Gulf of California, a few days' sail on one of the schooners that from time to time drifts languidly over these tranquil waters, is the wonderland of Baja California—Lower California.

It may be a bit arid. In point of fact, it is more than a bit arid. Horned toads carry canteens when they travel there. There are sections of the peninsula where it has not rained for seven years.

One must be a desert-lover thoroughly to appreciate the sandy wastes, its weary miles of mesquite and cactus, its huge canyons marked here and there by the traces of a race that is not only lost to history, but the existence of which cannot be explained by any of the commonsense theories of to-day.

But, provided the visitor does not fear

* See an account of the Seri Indians in "A Mexican Land of Canaan," by Frederick Simpich, in The Geographic for October, 1919.

FEATHERED WARRIORS READY FOR BATTLE

Cock-fighting is not as popular in Mexico as in some of the other Latin American countries, but it is by no means frowned upon. In some of the west-coast towns hardly a game bird will be seen, while in others lines of fighting cocks are staked out by the leg under the shade of every available tree.

INDIAN CHILDREN AND THEIR PETS

Strangers in Mexico find it hard to reconcile the peon's indifference to the suffering of animals, manifested by his enjoyment of the savage bullfight, with the fact that he is invariably upon the best possible terms with his domestic animals. He may not feed his dogs, but he continually pets them.

AL FRESCO DOMESTICITY IN MEXICO

In a land where the climate rarely goes to extremes of heat or cold, where no cutting winds blow, and where a thatched roof is protection even against the winter's rains, an elaborate domestic establishment is not required.

the sands, Lower California has much to offer. Pearls, for one thing. The hidden port of La Paz is, perhaps, the third most important pearling port in the world to-day; it is certainly no worse than fourth; and yet not one man in a thousand who knows of the pearling operations in the South Seas and in the waters of Borneo has ever heard the name of La Paz.

Two years ago La Paz had more dollars per wagon-load of population, perhaps, than any other town in the western half of the world. The price of pearls had been boosted sky-high by the demand from the newly enriched of the World War, and La Paz had pearls to sell.

It had been a pearling center for centuries. When the Spaniards, led by those extraordinary noses that could smell marketable commodities over leagues of sand or tumbled mountains, first came to Baja California, naked Indians were living in brush shelters on the shores of the gulf.

They found nothing to tempt them. They were about to sail away, according to the legend, when they discovered that these naked Indians—so miraculously poor from the Spanish point of view that even their souls seemed hardly worth saving—were possessed of pearls worth the ransoms of many kings.

A PRICELESS BLACK PEARL WAS INDIAN BABY'S PLAYTHING

In the crown jewels of the emperor of the dissolved Austria-Hungary there was—and no doubt the pearl specialists know where it is to-day—a great black pearl. That gem was found in the careless hands of an Indian baby playing on the beach at La Paz.

In time the pearl-oyster beds were partially exhausted in the vicinity of La Paz, for the Mexican Government has never compelled their proper conservation, and the pearlers were forced to go farther afield.

Nowadays the pearlers cruise, when they cruise at all, on the Pacific coast as far south as Manzanillo; but La Paz remains the center of the industry.

The mother-ships fit out there, and it is there that the pearls are brought to be sold to the experts, who at the proper season gather in the little mud-walled, palm-shaded, dusty village. Two years ago the tiny hotels were so jammed with pearl-buyers from the world capitals that some of these millioned men slept on blankets in the dirty corridors.

Most of the jewels go to the Rue de la Paix or to German or Dutch buyers. But in the last season hardly a buyer was seen at La Paz. The bottom had fallen out of the market.

HOW THE PEARL OYSTERS ARE GATHERED AND DIVIDED

The mother-ships are small schooners which carry three or four canoes, each with its crew of three or four men, who work on shares. The canoe crew gets one-tenth of its day's catch, paid over oyster by oyster on the schooner's deck, and opened as fast as counted. All expenses are paid by the capitalist who outfits the mother-ship.

It is a prodigious gamble for all hands. An almost naked Indian may work all season for barely enough to pay his *frijole* and *tortilla* overhead during the winter. Or the first oyster he opens may make him rich for life.

The pearls of the Orient are mostly white and pink, which are precisely those which can best be imitated by the wily pearl counterfeiter.

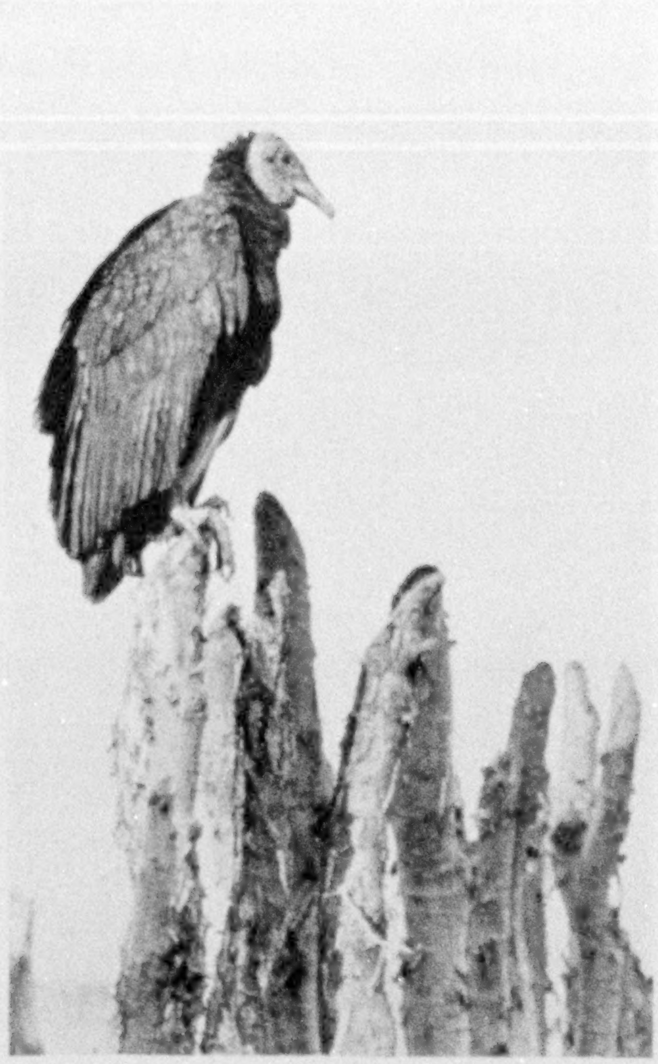
But the waters south of La Paz produce many black pearls, and brown pearls, and golden and gray pearls, and pearls of many another enticing tint. They do not run as true in form as those of Borneo, but their colors cannot be surpassed.

During the boom times La Paz's streets ran with money. There is a story of a black pearl for which an Indian canoe crew—not one of whom, perhaps, had ever possessed more than a suit of white cotton and a wide hat—was paid $200,000.

To-day it is doubtful if pearls command, at the source, one-fifth the price they did at the height of the boom. But one day the world trade will revive. It always has. Then La Paz will come back into its own, as the third—or, perhaps, fourth—pearling port of the world.

TRAVELERS CARRY THEIR FUNDS IN GOLD

We began to be annoyed by the fiscal system of Mexico. It had seemed romantic at Nogales—a long step back to-



SEÑOR ZOPILOTE IN A MOMENT OF RELAXATION

Modern physicians do not agree with the Mexican belief that the buzzard is a safe and efficient scavenger. Instead, it is maintained that he is a dangerous carrier of disease. In Mexico, however, sanitation is entrusted in the smaller towns to the joint efforts of the buzzards, the pigs, and the dogs (see page 485).

ward the friars and Cabeza de Vaca—to find that we must supply ourselves with gold for the journey down the west coast.

Thanks to the geyser of paper money that burst into Mexico under the revolutionists, beginning with Carranza and enthusiastically furthered by every revolutionary general who could commandeer a printing-press, there is no governmental credit whatever. Paper money is not accepted at any price for anything.

No one will ever know how many millions of paper pesos were emitted by the various officials who had rights over printing-presses. There is even a story of a local merchant who bought a mail-order press and printed his own issue on soap wrappers.

But this is no place in which to review Mexico's financial history of the past decade. The immediate pinch was that we looked lopsided, like badly packed mules, because of the hunks of gold that thrust out the pockets of our thin clothes.

It is necessary to carry sufficient gold, because banks have almost ceased to exist in Mexico. Carranza wrecked the banking system. Now and then a merchant will cash a bank draft or a traveler's check on the United States, and then that draft or check goes floating about through Mexico, like a paper Flying Dutchman, until it is worn to tatters.

I have seen checks to which long kite-tails of paper had been pasted to hold the added endorsements.

AMERICAN GREENBACKS HAVE NO PRESTIGE IN MEXICO

We had a theory that we could carry our own greenbacks and escape the back-breaking burden of gold; but that theory had been held by many people before us, and the Mexican Government had taken steps to defeat it.

American gold is accepted at par in Mexico, but American paper money is specifically ruled against. One may not buy railroad tickets or pay hotel bills or hire mules or get food with it.

Hardly a day passes that a resident American does not try to buy Mexican gold of the newcomer with good American dollars. At first the newcomer is generous and accommodating. Eventually he changes.

Because there are few banks and few bank checks in Mexico, business is conducted either upon a spot cash or a long-credit basis. If you have no credit, you pay cash. If your credit is very good indeed, the day of payment is deferred at an estate-eating interest.

The ordinary across-the-counter transactions are cared for at weekly settling days. Each business house has a posted sign stating that bills due will be paid on such and such a day of the week. The merchants send their runners around to each other, clearing-house fashion, to receive and pay out gold.

It is little wonder that banditry has been a fairly successful business in a country in which each cellar is a suspected bank vault.

TWO SOLDIERS OF THE WARLIKE YAQUI TRIBE

For the first time in history since the Spaniards reached New Spain, the Yaqui may be said to be in a position of ease and comfort. The Mexican Government is rationing and paying the Yaqui men, partly to make certain that they will continue to be peaceful and partly to retain their services in the event of war. Every Yaqui is a fighting man.

Guaymas is on the edge of the Yaqui country. We had been conscious of the Yaqui all the way south, of course, for in Sonora he forms the background to every conversation; but it was here that he stepped into the foreground.

When things go wrong in Yaquiland he is apt to beleaguer Guaymas. It is not so very long ago that no one dared walk out of the dangerous end of town. The Yaquis have burned railroad bridges and held up railroad trains and murdered passengers.

ONLY 5,000 YAQUIS SURVIVE

At one time the Yaquis may have numbered 30,000 souls; now there may be 5,000 in all.

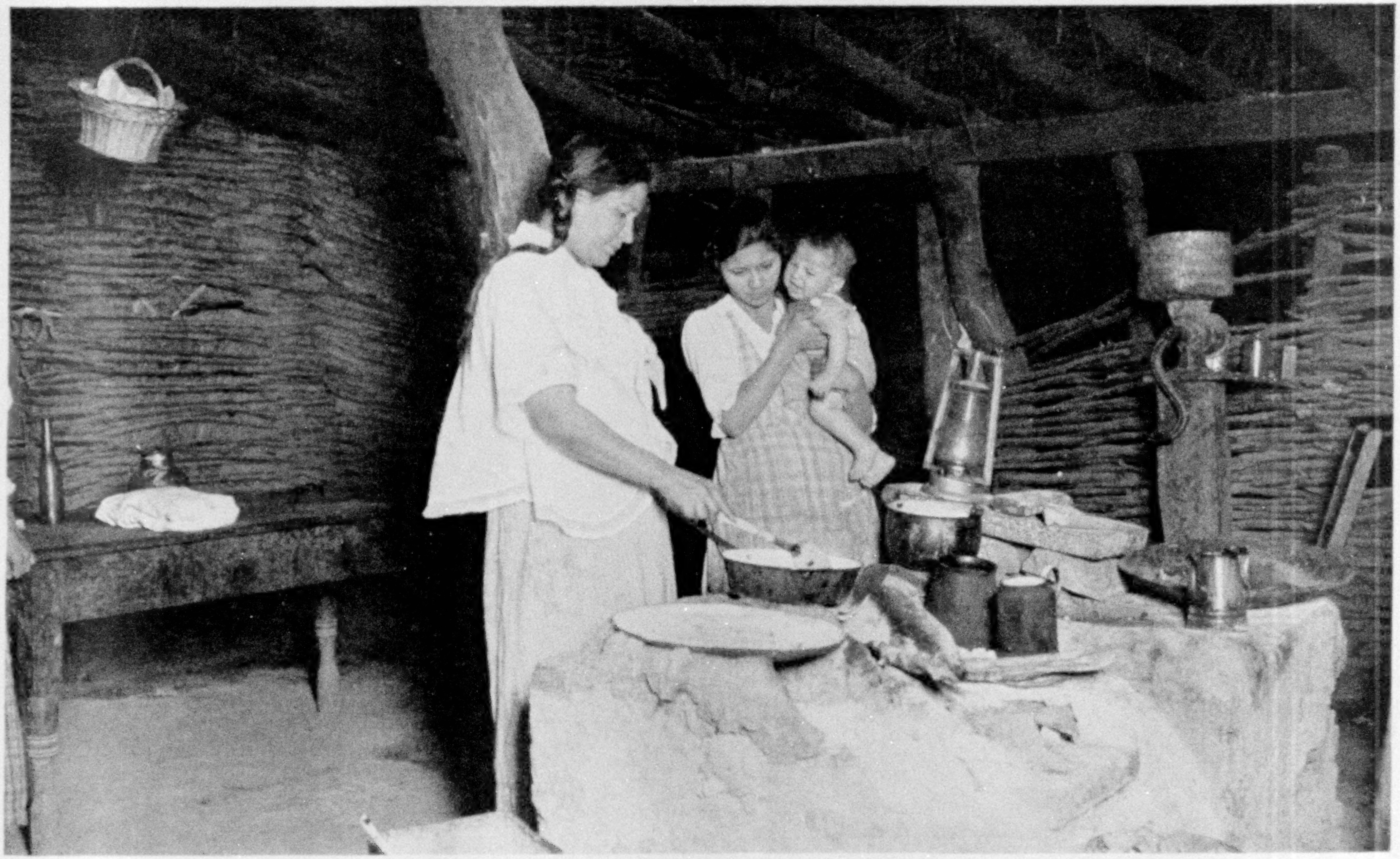
Their home was in the fertile valleys of the Yaqui and Mayo rivers, with the hills behind as hunting grounds. They were as tireless on the trail as the Apaches or the Navajos, and, despite three hundred years of contact with a more or less diluted civilization, are to-day about what they were when the first Spaniard came to Sonora.

They live in shacks made of brush, prefer the meat of burros to beef, and preserve jealously the purity of the Yaqui blood. They are religious after their own fashion, mingling the rites of the Catholic Church with those of their own barbaric faith.

Most Americans who know the Yaqui say that if he had been let alone he would have let the white men alone.

But he owned fertile valleys and mine-rich mountains. The history of our own West teems with analogous cases. The miners and the farmers established themselves in his territory, and the Yaqui declared war. The technical honors seem to have gone to the Yaqui.

It is true that at one time mines were opened everywhere in his mountains and the fat river bottoms were taken from

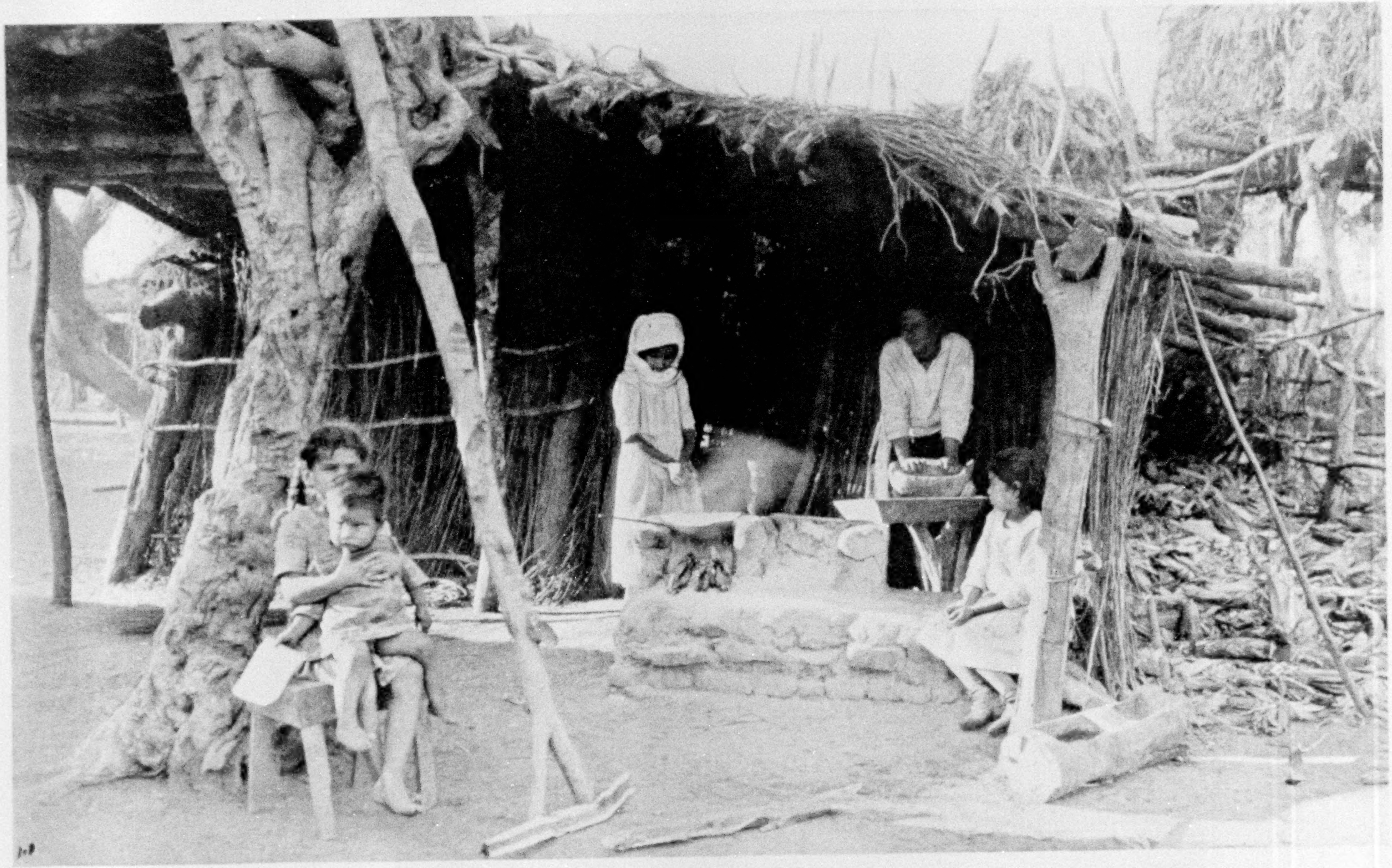


IN A WEST-COAST INDIAN KITCHEN

In the favored climate of the west coast the Indian does not bother greatly with domestic cares. No chimney is needed, for will not the smoke curl out of the door and find its way through the intricacies of the wattled walls? A fireplace of stone or adobe, a cooking pot or two, and the establishment is complete. This kitchen is almost luxuriously equipped, for there is a chair in the background, a mill to grind coffee, a real table, and an American lantern.

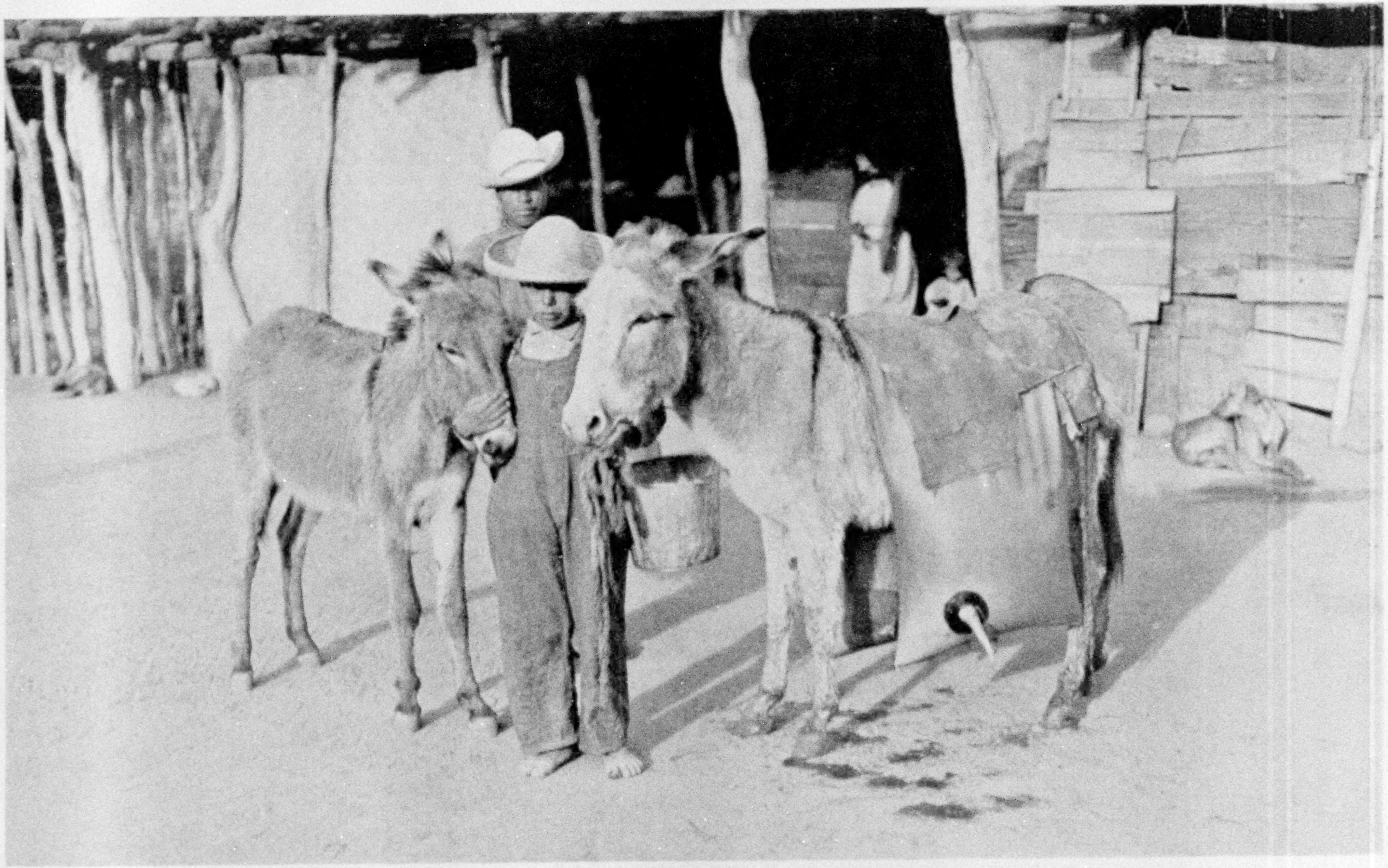
UNCHANGED BY THE PASSING OF FOUR CENTURIES

Throughout Mexico the threshing of the wheat by natives is done in this way, just as it is done in Spain and Arabia to-day. The wheat stalks are scattered upon the stones of the threshing-floor, and then mules are driven upon it. Sometimes they drag a heavy weight, which constitutes the most modern improvement known to the majority of threshing crews in Mexico. After some hours the straw is raked away, the wheat swept into piles, and then a peon winnows it in the manner shown in the picture. The wind blows away the lighter chaff.



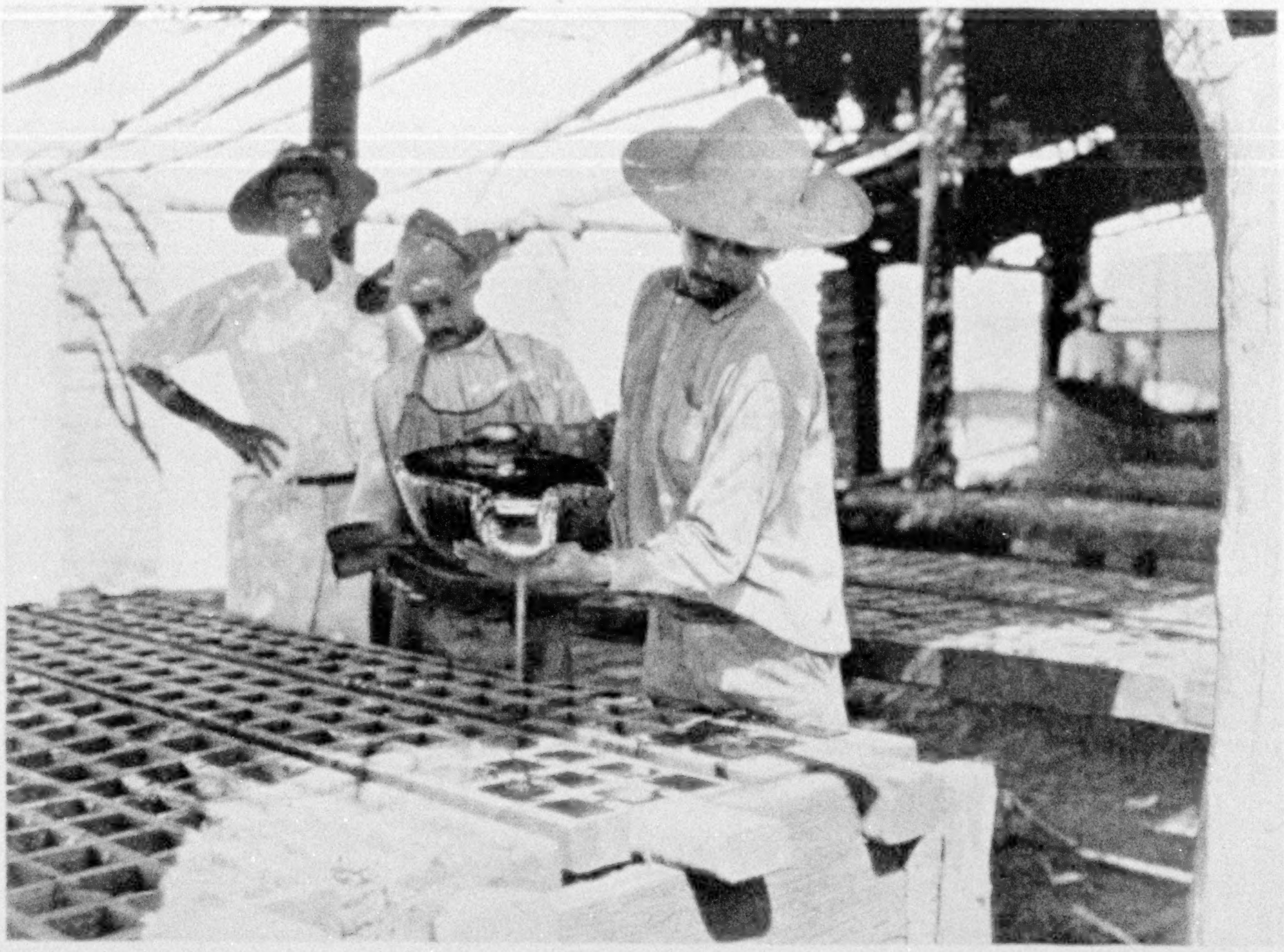
NO MEAL IN MEXICO IS COMPLETE WITHOUT TORTILLAS

Woman's work is literally never done in Mexico, for the labor of preparing the universal tortilla is everlasting. At the right, the mother is grinding the paste from corn which has been boiled first in limewater and then again to take out most of the taste of lime. At the left, the eldest daughter is baking the thin, pasty cakes upon a plate of sheet-iron which covers one of the fireplaces in the open-air kitchen.



UP-TO-DATE WATERWORKS IN SAN BLAS, SINALOA

The burro waterworks are common to all west-coast towns, of course, but in San Blas, Sinaloa, a variation has been introduced. Here the water-bags across the donkey's back have been equipped with a cow's-horn faucet, and the precious fluid is drawn in this way. The water-sellers often travel miles to find a clear stream, and then peddle their goods from door to door.



AN AGE-OLD SWEETMEAT OF MEXICO

The workman in the foreground is pouring the syrup of sugar-cane from a ladle of ebony wood into the wooden molds. In this way panocha, the most universal sweetmeat of Mexico, is prepared. It tastes and looks much like our maple sugar, and extraordinary virtues are attributed to it by the Indians.

him; but the troops sent against him were cut up time after time.

After a battle the Yaquis disappeared without leaving a sign. The "bronco" Yaqui became the tame Yaqui overnight. He traded breech clout for the blue overalls of honest labor.

Of course, that sort of thing could not be endured by the Mexican Government. Without discussing the rights and wrongs, the fact remained that the Yaqui stood in the path of progress. President Diaz at first tried to conciliate and then to defeat them, and finally resorted to a policy of extermination.

A Yaqui scalp had a cash value over the counter. I have talked with a man who sat at breakfast with a Mexican general to whom was reported the capture of 200 Yaqui braves. Without leaving the table, he ordered that half be shot and the other half deported to Yucatan, where laborers were needed on the sisal plantations.

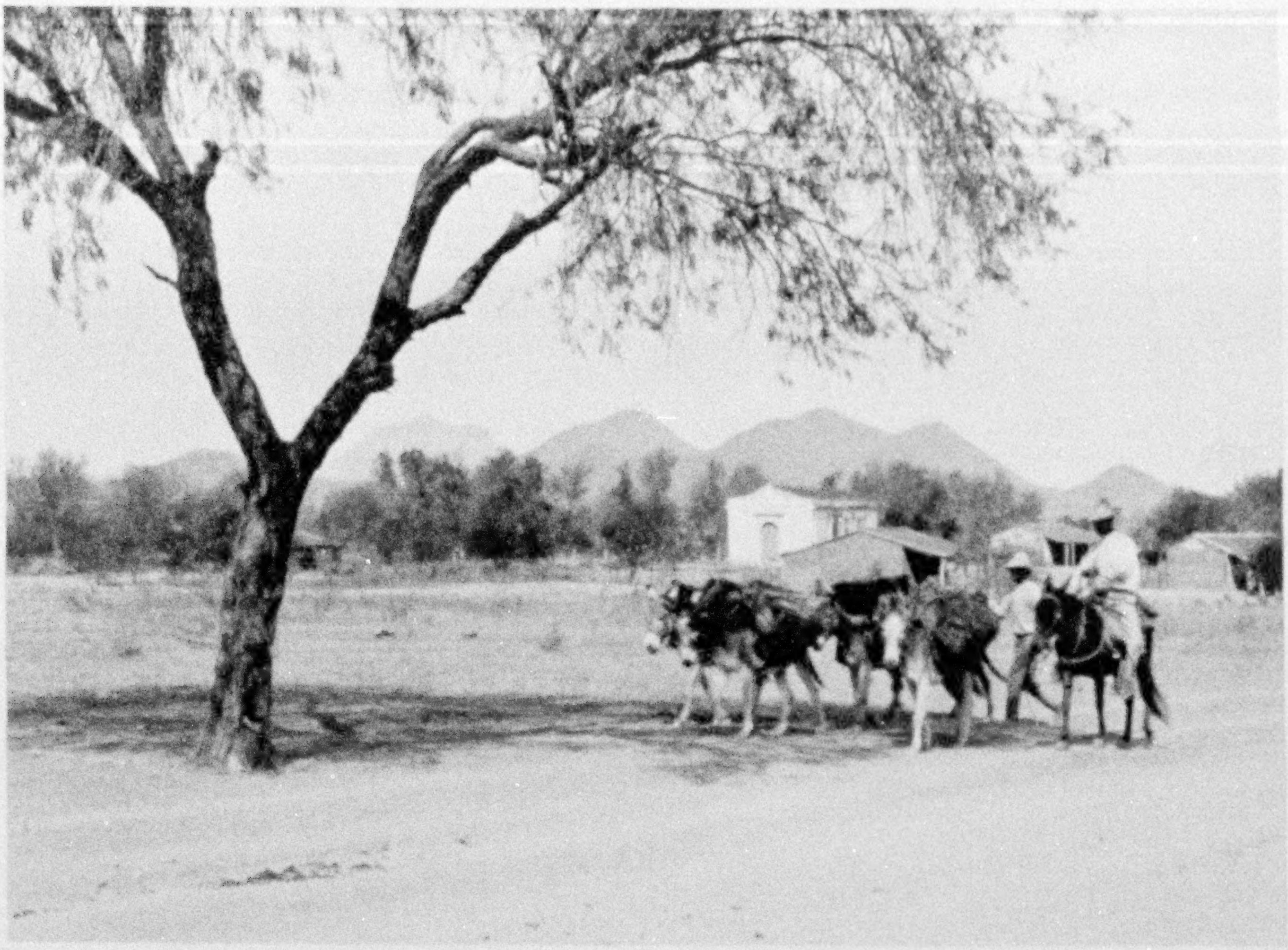
One hears in Sonora that not all the ships that sailed for Yucatan voyaged farther than the first shark fishing ground.

THE YAQUIS ARE MEXICO'S BEST FIGHTING MEN

Diaz had cowed the Yaquis if he had not completely subjugated them. The river valleys were given over to the plow and the prospectors roamed at will through the mountains.

Then Francisco Madero, practical idealist, enlisted them in his fight against Diaz, and the Yaquis discovered that they could play a part in politics. They are Mexico's best fighting men. To-day the tribe is being maintained with pay and rations as a part of the Mexican army.

The railroad line to Tonichi and other short lines leading into the Yaqui country have been abandoned. The Yaquis have been pursuing a policy of more or less peaceful penetration into what was once their own country.



CHARCOAL-BURNERS COMING INTO CULIACAN FROM THE MOUNTAINS

One of the constant industries throughout Mexico is the burning of charcoal for use in the tiny braziers so well adapted to the needs of the housewife in a semi-tropical climate.

"We are coming home. Get out," the Yaquis have said to many a Mexican whose family had lived on a Yaqui valley ranch for generations. Usually the Mexican gets.

If he does, the Yaquis give him orders upon the Central Government at Mexico City for the full value of the property, for the Yaquis, according to their lights, are honest and fair.

If he does not leave—he always leaves.

Recently the Mexican inhabitants have abandoned the post-office towns of Potam, Vicam, and Torin. Not a person not of Yaqui blood now lives in them. A fourth town, Bacum, is being slowly reclaimed.

The Yaquis are riding nearer the superb rice farms of Cajeme, operated by Americans through sheer grit and stubbornness, during years when the Mexican Government could not protect them, and their own government would not. The American settlements at Esperanza, where one of the greatest modern irrigation works in Mexico is in operation, are likewise being visited. Not threatened; just visited.

SILVER BULLION LEFT UNGUARDED IN THE STREETS OF SAN BLAS

In San Blas, Sinaloa, a hand-organ began to purvey mournful sounds, and a dry-river prospector and I drifted after it. He really liked the music. He had been up in the hills so long, where the music is that of dawn and dynamite, and the morning stars singing together and evening burros braying, that it sounded like grand opera to him.

Back in California he has a large house filled with servants and guests in morning, afternoon, and evening clothes.

The street sights drew me. A very handsome woman sat in the dust, her back against the wall, a little knee-high stand in front of her. She sold oranges at three for a cent, or some such trivial price. One of her eyes had been blacked, her feet were bare, and a rounded shoulder showed through the rents in her gown.

AN UP-TO-DATE LAUNDRY IN CULIACAN

Hard work takes the place of soap in Mexican laundry operations. The women take the soiled linen to the river bank and beat it upon the rocks until it is clean. The process is rather hard on the texture of the finer garments, but an extraordinary glistening whiteness is obtained.

Burros swung around the corner, engrossed in thought, as burros always are. Each dragged a pair of small logs lashed to the pack-saddle.

The keepers of the little eating stands at the station began to get ready for the day's one train. Each had a tin which had once contained five gallons of gasoline and out of which a tiny stove had been constructed. Two or three young Americans, grave, dusty, high-booted, revolvered, marched down the street—young engineers, two years out of college.

Three-inch Bain wagons jolted past in incredible noise and dust. They were drawn by oddly harnessed teams, four mules abreast on the pole and from six to ten as lead and swing teams.

The white-hot sun burned deliciously upon our backs. It devoured the filth in the streets, so that the only perceptible odor was of the fragrant oranges at the pretty woman's stand, or the occasional acrid reek of a cigarette.

A peon came out of a store with a bar of dirty white metal on his shoulder. He dumped it on a rough mat in the bottom of a wagon and wandered up the street. At intervals he reappeared with other bars, as we sat in the sun and talked of San Francisco and Washington and Paris. Then he went to a restaurant for his noon meal of beans and cakes.

The bars were of silver. They would have been quite as safe if they had been gold, for there are conventions in crime. One does not steal bullion in the street nowadays.

Bandits there are, of course.

"Were," corrected the dry-river prospector. "Were."

HOW A FORMER STEVEDORE PUT AN END TO BANDITRY

General Flores had put an end to banditry, it seemed. An extraordinary man. Ten years ago a stevedore at Mazatlan, unable to read and write. A power among his fellows because of his qualities of leadership and also because he was absolutely fair.

He had fought his way up, by sheer military ability, coupled with ruthlessness, until now he is the military governor of the three States of Sonora, Sinaloa, and Nayarit. The State authorities in Sonora do not get on with him, and so he confines his operations to the other States.

One heard of him everywhere. Always people said of Flores, "He is fair; absolutely fair."

He had stopped banditism in a way of his own. In the United States we chase bandits when they break into a bank or hold up a train. It makes excellent melodrama and often we catch the bandits.

Flores sent out *cuidadors,* which term might be translated as "care-takers," who are really one-man field courts-martial. They pop into a village in the early morning, accompanied by soldiers, who shoot at people who try to leave town through bypaths.

They set up court in the plaza and send out their agents. "Get Juan," they say, "Juan Esmeet."

The evidence has already been collected

DYEWOOD CARTS FORDING THE RIVER AT CULIACAN

The dyewood industry is a persistent one, although the unsettled condition of the past few years has held it in check. In the distance may be seen the twin towers of the cathedral of Culiacan.

and passed on—the secret-service agents of Flores have attended to that.

Juan is as good as dead when the soldiers put their hands on him. He makes a few farewells, parcels out his fighting cocks among his friends, kisses his wife and babies, and walks to the wall. They always die bravely, said the dry-river prospector.

In one village Flores had shot seventeen bandits and in another thirty-two.

One might ride through Sinaloa or Nayarit with gold pieces hung all over him nowadays. Banditry had practically disappeared. Up in one corner of Durango they still steal and kill, but that is outside of Flores's jurisdiction.

"But the cuidadors?" I asked. "Are they always honest and fair?"

"They had better be," said Dry River, grimly, "with Flores!"

One thinks of Kipling in the Fuerte River country. Perhaps the resemblances are only superficial, but they are at least striking.

The club at Los Mochis, which is a part of the Kipling analogy, is maintained for the employees of a great American ranch. Elsewhere in this delightful, but somewhat backward, land one may be compelled to subsist on frijoles and tortillas.

A tortilla is a thin flapjack, made of the paste of corn which has been boiled first in limewater and then in a rinsing water, and which has then been hammered and rolled out on the *metate*, the grinding-stone, which has not been altered in the knowledge of history.

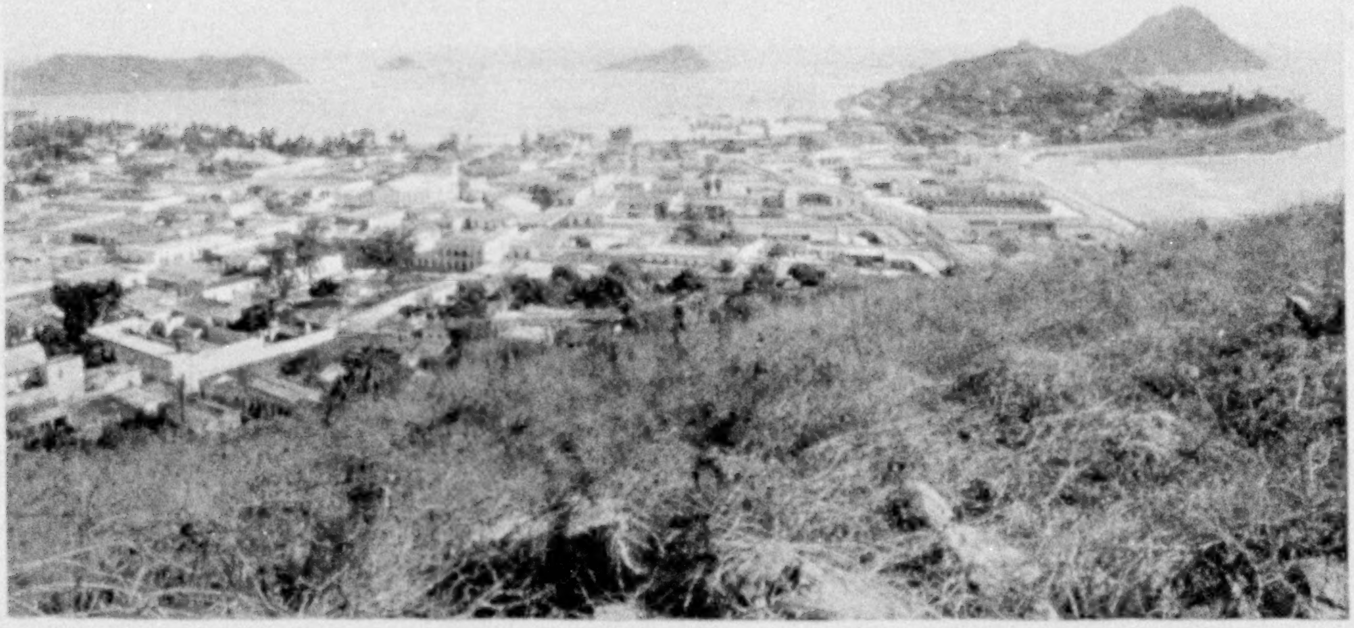
Toasted tortillas are delicious, but the casual roadside tortilla has been merely dried to a sogginess on a tin plate, or on a stone propped in front of the fire. It tastes unpleasantly of lime.

The beans, of course, are always good; but one cannot live by beans alone. Pork can be had if desired, but after having watched the Mexican pig in his daily pursuits, I set my face against pork in Mexico. He is the companion and competitor

"HE WHO SLEEPS, EATS" IS A SPANISH PROVERB

Many a man, in these latter days of unrest, has staved off the claims of appetite by sleeping on a park bench, warmed through by the generous sun.

AN EVENING MEAL IN AN INDIAN HOME



THE BEAUTIFUL PANORAMA OF MAZATLAN

This view, taken from a hill at the western end of the city of Mazatlan, gives a very good idea of the beauties of its harbor and of the protection which light-draft vessels may find there from any wind. Port improvements which will make this one of the fine harbors of the west coast are now contemplated (see page 496).

of the buzzard. Not only will he eat everything that the zopilotes will, and these indecent birds are official scavengers everywhere, but he usually beats the zopilotes to whatever there may be in the village.

The absolute chumminess of the Mexican pig, dog, and buzzard is dismaying. I do not wish even to argue the matter of pork.

WANTED—A KIPLING FOR MEXICO

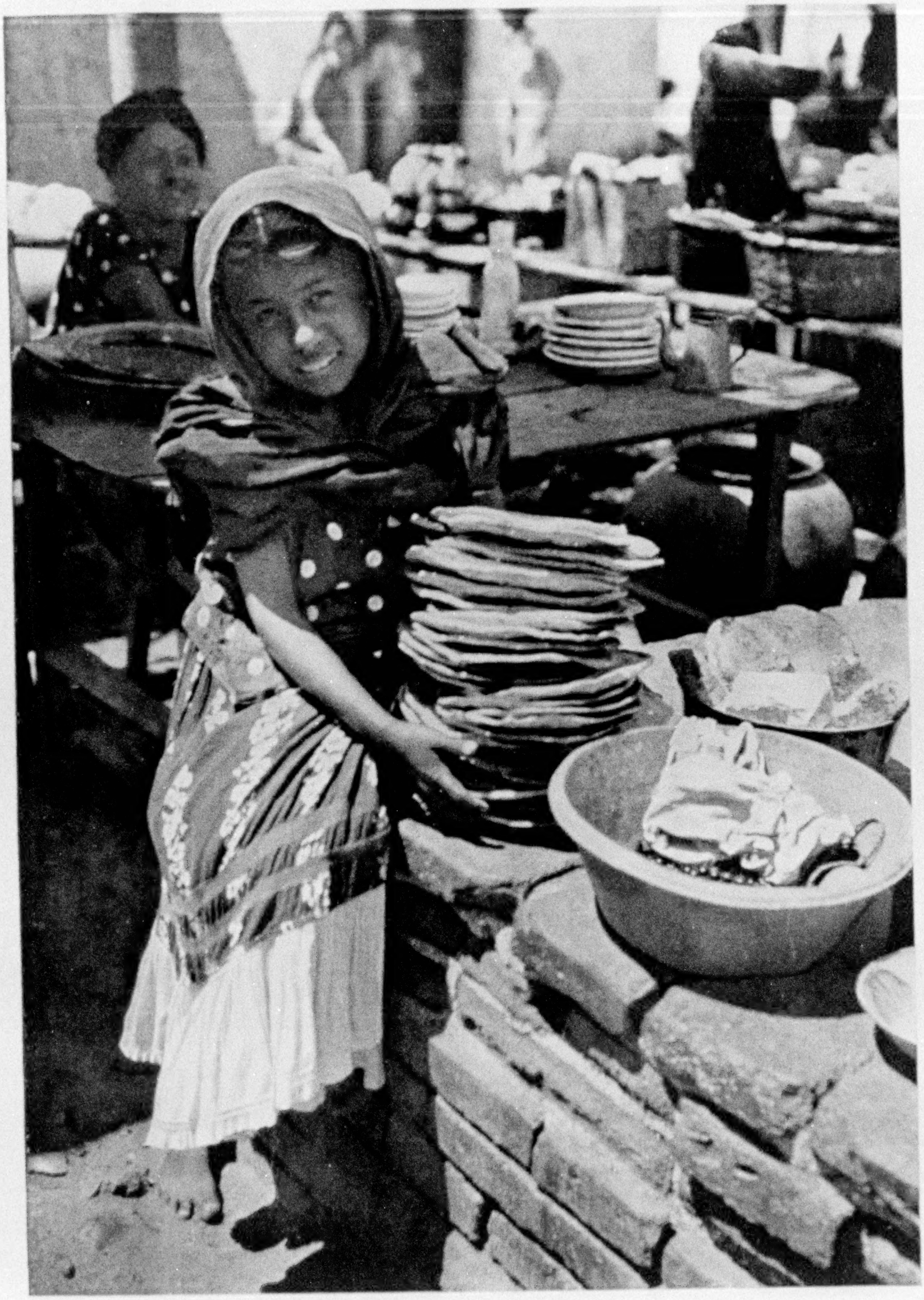
Americans do not keep happy on beans and tortillas, and so the ranch management instituted the club. The married Americans live in rose-covered paradises at the farther end of vistas of palms. In this country flowers seem to grow all the year around.

The Americans dress for dinner, and meet twice a week for dancing and bridge, now and then spending a week-end on a house-boat.

Add the swarming natives in their thin cotton, paddling about barefooted, and ox-carts, donkeys, fine horses, and—if one is interested—alligators in the lagoons, bears in the mountains, and a bad cat the natives call a tiger. All the country needs is a Kipling.

All along the coast we had heard of the ranches at Los Mochis. There are rice ranches at Cajeme, in the edge of the Yaqui country, and banana ranches at San Blas, Nayarit, three hundred miles below, where Cortez once built ships with which to cruise the Pacific, and other ranches at every step between. But those at Los Mochis are the show-places. There are thousands of acres of sugar-cane and tomatoes and beans and alfalfa.

The fences hereabouts are often made of the organ cactus. Riders through the bush use saddles made with a sort of bifurcated apron, which they throw over their knees for protection from the thorns and open out for coolness where no thorns are (see illustration, page 458).



THE TRUE STAFF OF LIFE IN MEXICO

Wherever one goes in Mexico tortillas are stacked up awaiting purchasers, or are being eaten, or are in the course of preparation. A few centavos will buy a handful of these cakes of half-raw, lime-tasting dough. The appetite for them is distinctly an acquired one, but, once acquired, it stays on. There are few things more delicious than a tortilla that has been twice roasted, so that it breaks crisply in the fingers.

Trains do not hurry away from the stations in this country. The engineer whistles; then he whistles again. The sleepers who have been dozing alongside the track, in the shade of the cars, reluctantly rise. The roadside saleswomen put away their offerings of tomatoes, onions, coffee, cakes, and bread.

The sucking of oranges begins again in the cars, along with gossip and cigarettes. Every one is friendly and happy. Sometimes the train halts for a group of frenzied riders to catch it through a mounting cloud of dust. The officers, in puttees and Sam Brown belts and revolvers, buy innumerable bottles of beer at a peso a bottle and gurgle it from the bottle mouth. Dust sweeps in through the open window.

The man in the seat ahead carried a fish to the drinking-water tank and cleaned it. Then he wrapped it in wet grass and hung it to the coat-rack, so that it dripped upon his shoulder.

Intimate domesticities are observed here and there. The woman in the seat behind obeyed at last the squalled remonstrances of a very hungry baby.

From the ancient first-class car, in which one rode upon once-plush seats, I could see through the open doors into the third-class car ahead. The Indians sat on backless benches, worn smooth and beautifully colored by age and friction, and leaned forward, their beady eyes fixed unwinkingly on the gentlefolk in the first-class car.

A sixteen-year-old girl changed her blouse and did up her hair. No one gave her a second glance or thought.

At the wayside stations small naked babies pattered about. They were the most delightful little rascals, brown and fat and gay.

The zopilotes abound. They became an obsession of Adams. He was forever stalking these obscene birds; so that his collection of buzzard pictures is, perhaps, the finest in Christendom (see page 474).

Hereabouts the Mayo Indians are the preferred laborers. They may or may not be the remnant of the ancient Maya tribe, which built such superb monuments in Guatemala and Yucatan.

It seems unlikely. The Maya civilization was of a rather high order, while these squarely-built, strong, five-foot chaps seem stupid. They prefer not to live in houses, and many a time a ranchman has established a new family in a good hut, to find them next morning crouched under a ragged blanket stretched upon a bush.

The port of Los Mochis is Topolobampo. Once it had hopes. That was when Americans planned to build a railroad across the mountains from Kansas City. A pier was constructed, the rotting remains of which are still used when an occasional boat drifts into the little bay. A stub-end of railroad was built up the Fuerte River. It should have met the line which was being built through the mountains, south from the border, but by and by building stopped in the hills.

All around Topolobampo is the weird, mysterious bush, through which one-mule-wide trails go winding. One wonders what is at the other end of the trails—what can be at the other end.

An occasional cow, bursting with fatness, crops her way through the jungle. Deer gaze mildly from the edge of the narrow clearing through which the railroad runs. We hear of huge snakes—

We refuse to listen to snake stories.

SHRIMP SWEPT BY TIDE INTO MOSQUITO-INFESTED TRAPS

The Indian meaning of Topolobampo is Tiger Water, so called because the declining rays of the sun, falling upon waters that swarm with golden shrimp, give the effect of a tiger's skin mottled in purple and gilt and gray.

Carloads of shrimp are sent from here during the season to the United States. They are caught in traps by heroic Indians as the tide sweeps them on. The Indians are heroic, because no one else can resist the masses of mosquitoes that fight their way through the smoke of the smudge that is tied alongside the trap. The Indians work desperately with long poles "to poke the big fish off," as one shrimper explained.

Our entrance to Culiacan still pleases me in retrospect; it was so unreal and stagy. We tumbled down an embankment that was fitfully lighted by tallow candles, the beams from the headlight, and the lanterns of the trainmen. A

cargador, buried under our mountainous bags, scampered ahead for a cab. The morning was crisply cold, the stars unbelievably near and vehemently bright against a background of fathomless, cloudless, dark blue.

We climbed under the half roof of a low-swung carriage, behind a driver who towered above us in buckskin and brass buttons and a cathedral-like black hat. The little horses reared and jumped and fought for their heads. Their neat round hoofs pattered on dark streets cobbled in quaint patterns between dark, one-story houses.

The driver hammered at the double door of the dark hotel. Through a half door, set in one side of the great portal, two odd figures scuttled out.

They were the night porters, who sleep by night, Mexican fashion, in the great arch of the door. Bemused by sleep and cold, they said no word, but led us to our beds.

I sank into sleep, barely conscious of the vine-tangled patio outside, of the fifteen-foot ceiling overhead, and of the stones of the floor, worn into hollows by passing generations.

MORNING MADE HIDEOUS BY CLANGING BELLS

A most abominable clangor woke me to curse a hotel which would permit such a breakfast gong.

It was not a breakfast gong after all. The vicious tumult came from the church bells of Culiacan. As we traveled on, we became accustomed, in time, to the incredible uproar of the Mexican church bells; but none ever approached in horror those of Culiacan. They remain my most vivid memory of this fine old town.

Yet there is another sound that marches in my memory with the bells. Each morning as I cursed the sonorous bombardment I would hear another sound under the window that gave upon the street—slip, slip, slip—the faint shuffle of barefooted Indians on their early way to work—marketmen and women, probably; no others would rise at such an indecent hour. I could barely see them, sliding through the gray of dawn, indistinct in their white cottons and straw hats; but for the almost inaudible susurrus of their sandaled feet, they might have been sheeted ghosts.

Through the open doorway came the light rustling of the palm branches in the patio, stirred by that breath of air that heralds the sun.

It was a relief to find the cathedral was not worthy of its superb exterior coloring. One grows tired of altarpieces and the blackened paintings of saints.

Outside we watched the policemen, wide-hatted, sword and revolver in belt, riding snappy little horses.

Ice is properly regarded in Culiacan as a luxury and is treated ceremonially. The ice wagon was painted white and gold, like an animal van in a circus, and was drawn by two white, pink-eyed mules.

Long teams of mules hauled in dyewood.

RAILROAD TIES OF EBONY AND MAHOGANY

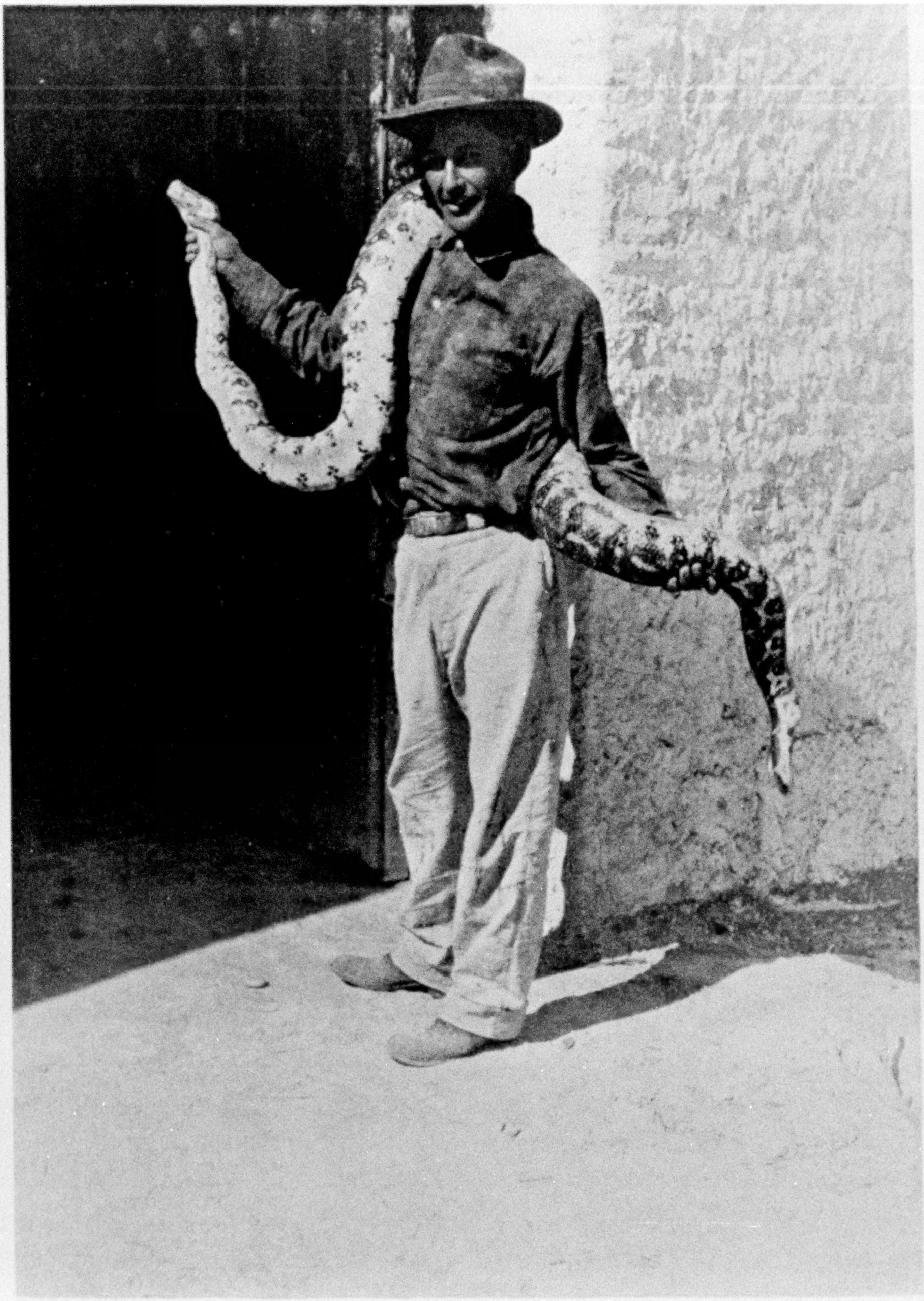
From Culiacan to Altata, a dying port, there is an ancient British built railway, of which the ties are ebony. This is no longer startling, however, for the Southern Pacific's tie contract provides for forty-two kinds of wood, of which mahogany is a commonplace.

Housemaids on the ranches are paid one peso weekly, which is equal to fifty cents American. Drivers of excellent two-horse teams wait for the four-o'clock-in-the-morning train, on the chance of a two-peso fare.

In front of the movie theater women sit each night behind tables covered with crude sweetmeats, under twinkling candles. Three dollars American would buy the entire stock.

Culiacan is the capital of the State of Sinaloa. A prosperous town once, it was ruined by the war, as were the other coastal towns. In the handsome market-house only the cheaper necessities are sold. The banking-houses are for the most part empty. Commercial travelers still visit the town with that complaining industry common to the breed.

Even in the most crowded hours the streets seemed almost empty. But this can only be a state of suspended animation. Anything can be raised in the fat soil under the almost hothouse-like conditions.



THE "HOUSE CAT" OF A HOTEL IN MAZATLAN (SEE PAGE 496)

In Mexico one takes certain things for granted. Boa-constrictors are far better mousers than are cats, even if the boas did not invariably eat the cats when the two are in competition. Therefore one obtains a boa for a mouser, if one is in a boa-constrictor country, and thinks no more about it. They are docile and harmless, but do not enjoy being handled, even if they do not resent it.

THE FAMOUS FLAT ARCHES IN OLD SAN BLAS

A flat arch is an architectural rarity nowadays, but the sturdy churchmen who built this superb old edifice at Old San Blas, in the State of Nayarit, where the galleons once landed stores of silk from the Philippines bound for the court of Spain, had the secret of their construction. Now the church is in ruins, and certain citizens of the world underfoot writhe through the openings in the walls torn by the encroaching jungle.

In the mountains are mines, of which some produced steadily since Spanish times, until their owners were compelled to shut down by reason of the war, and of the experiments in taxation which followed.

ROAD OF AZTEC CONQUERORS RUNS PAST CULIACAN

The old road down which the Aztecs marched on their way to the conquest of Mexico runs past Culiacan. On the rock walls of the canyons their carvings may be found.

Unless rumor does them wrong, the Indians here still worship the old gods, though they have confused them somewhat with the gentler teachings of Christianity. It was but the other day that workmen on the great irrigation project the government is furthering near by found a painted jar of unbaked clay, ten feet high and eight feet across the mouth, filled with little painted clay images.

Gods, perhaps, or toys; no one knows, for the workmen destroyed jar and figurines alike. Not far from Culiacan is what is said to be the largest meteorite in the world.

Twenty miles from Culiacan, over a road compact of dust and bumps, we found an old panocha mill. It had a steam-engine and a cane-crushing device, but otherwise the panocha was made just as the Aztecs made it, no one knows how many centuries ago.

The juice of the cane was boiled down and sugared off in troughs hollowed out of ebony, and sold in crude cakes that are in every market-place in the Republic. Panocha looks and tastes much like our maple sugar, and the Indians attribute the most extraordinary virtues to it.

THE MYSTERY OF THE LOST CITY OF BACIS

One has but to open one's ears to hear the most entrancing stories. Little mining villages in the near-by mountains are provisioned by mule train from Culiacan. Through Indian villages pass the trails that are as they were in Montezuma's time, and have been used so long that the unshod hoofs have worn holes eighteen inches deep in the enduring rock.

In these hills—somewhere—is the Lost City of Bacis. One wanders by mule for days and miles until he comes to the village of Bacis; then one goes no farther. The mountains have become impassable. The little river which brawls down the canyon is boxed in precipitous walls.

Prospectors have tried to fight their way farther and have returned baffled; and when a prospector quits no other man born of woman need try the traverse. Even the Indians declare they do not know the higher reaches of the hills.

Yet—so say those who repeat tradition—oranges sometimes float down the little river, and bits of oddly woven cloth that have caught on twigs, and carven wood. A legend has grown that somewhere in the hills is the Lost City of Bacis. There are men and women living there, say those who believe, and their houses are filled with gold, and there are fragrant orchards on the open slopes.

It is said that the Indians have guarded the Lost City since time immemorial. Not even the Spaniards reached it. It is still as it was in Montezuma's days.

One feels grateful to those who tell such tales. They are pleasant to hear.

A PICTURE OF THE DEPTHS OF MEXICAN POVERTY

At Culiacan a veil seemed taken from my eyes. I had been blinded by the color and movement, the strange and picturesque life, the romantic accessories of Mexico.

I now began to realize the depths of poverty in which most of the lower-class Mexicans live. They do not often starve, perhaps, for they have that charity that distinguishes the very poor; but they rarely have enough to eat. They lack all luxuries except tequila and pulque and panocha and tobacco. They live on a plane of discomfort and unhappiness and ignorance.

I had been looking on the Mexican habit of taking a siesta with a certain contempt. No sun had been warm enough to keep Adams or me under shelter. We had wandered through miles of empty streets, between shuttered houses. The occasional passer-by looked on us with amusement, as two mad Gringoes who knew no better.

"They're lazy," I said.

But they are not. Well fed and well

HERE RESTING IS ALMOST A SCIENCE

In this pleasant town of Mazatlan, where the warm sun beats upon one's back and the dry sand is kept clean by a scouting wind, there are many such picturesque streets as this. Work seems not to be a matter of import; no one hurries.

clothed, the Mexican Indian is a fair laborer; but usually he is half starved and half dead for sleep.

A LIFELONG DIET OF CORN AND BEANS

From the northern border to Chiapas, the Indian—and of the 15,000,000 Mexicans more than 6,000,000 are pure-bred Indians—is on the border of complete destitution. He has so little that he has really nothing.

The unvarying food in every puebla is frijoles and tortillas—beans and cakes. The Indian may get a slice of meat now and then, when the scavenging pig or one of the few remaining cattle has been killed. There are a few chickens in each village. He may, now and then, kill a little game or catch a few fish.

But, broadly speaking, he lives on corn and beans. To mitigate the monotony of that diet, he soaks his food in chili sauce. The blazing torture that sets up in the unaccustomed mouth is almost that of a fire blister. Yet the Indian eats it by the handful.

He lives on this diet. That he has the sturdiest sort of a constitution is evidenced by the fact that an Indian, habitually underfed on corn and beans, is able to fill his *morales,* a sort of bag the runners tie to their waists, with a ground mixture of parched corn and salt and live upon it for weeks in the back country, where no other food is to be found.

But that he will do better work and more of it and more days of it to the week on better food has been abundantly proved by American employers, who insist on feeding their men.

If the peon is given money for food, he buys beans and cakes and tequila; but if he is fed in the company kitchen, he grows strong and works hard.

In the north he huddles in a 'dobe hut, usually without windows, sometimes without even window openings. The floor is mud, the only furniture a few earthen cooking pots. It even lacks a chimney, and the fire is built in the middle of the floor and the smoke curls out at the level of the rafters.

His clothes are two pieces of thin cotton, with rawhide sandals sometimes. His womenkind wear sleazy wrappers. He folds a blanket about his shoulders in the day and sleeps in it at night. Usually the man of the house and his wife and the surviving children sleep on the mud floor without a pretense of a bedstead or bedding more than an armful of grass, when the pigs and dogs and chickens have tracked in too much water during the rainy season.

FIFTEEN YEARS IS THE MEXICAN INDIAN'S AVERAGE LENGTH OF LIFE

I said the surviving children because the death rate of children under one year of age is twice what it is in the United States, and the death rate of children under ten is three times as great. The average tenure of life in Mexico is fifteen years. Mexican statistics are untrustworthy, but these given have not been challenged, to my knowledge.

It is not now strange to me that these half-clothed, half-fed, shivering folk wake up in the middle of the night to talk, nor that they must sleep in the hot sun of noon. The marvel to me is that when they wake up—of a cold midnight, when in a blanket and overcoat and warmly bedded on a pile of straw I shivered—they always laugh and chatter and seem happy.

As one goes farther south, the only difference in living conditions is that the Indian wears fewer clothes, and that his home is made of thatched poles instead of adobe.

The clay-built huts of Guaymas gave way at Culiacan to brush jacals. Three sides of the shack are walled in by poles, through the interstices of which the sun sometimes shines and the winds blow. The fourth is open to the world. Over all is a brush roof.

A little cooking place is built up on the open side. A metate, or stone on which the boiled corn is ground for tortilla paste, a few round pots in which water is carried from the river, a gasoline tin or two for cooking, and the home is complete.

"One can get almost anything for an old tin can," a roaming prospector said. "Such things are priceless to the Indian."

Pessimism is not justified, however. The Indian is what he is to-day because of centuries of oppression, misrule, and demagoguery, perhaps, but also because he is an Indian. He knows no better.

INTIMATE DETAILS OF THE KITCHEN AT LAS TRES MARÍAS

The cook at the penitentiary settlement on the islands of Las Tres Marías is here shown chopping up the meat for dinner. Because there is practically no ice to be had throughout the greater part of Mexico, the day's supply of meat is usually killed just before it is sent to the kitchen. A contented cat is purring in the foreground, while the dogs are prowling about in the hope of espying unguarded tidbits.

EVERY CONVICT IS HIS OWN COOK

A view of early Sunday morning activities in the penal settlement of Las Tres Marias Islands, off the west coast of Mexico. The convicts, who for the most part are serving time for minor offenses, are permitted to cook their own food.

Ambition has been dead in him. If he has had a little patch of ground in which to raise his corn and beans, and a pig or two running about, he has been content. To have more has in the past been a challenge to fate. A pauper might escape the attentions of bandits or patriotas, but a well-to-do Indian, living in a good house, with horses and cattle and burros, assuredly would not.

Likewise, the country has been about as thoroughly developed as is possible without the aid of foreign capital. Irrigation works on a grand scale cannot be put in except through governmental or banking aid, and capitalists have been sheering away until Mexico's disposition to play fair with the investor has been demonstrated.

MAZATLAN, THE CITY OF PARROTS

It was at Mazatlan—heavily accented on the final syllable—that we were abashed by a parrot.

There were parrots everywhere, of course, from mere flashes of color to middle-sized birds that talk, and on to huge creatures that not only squawk, but have a hideous intelligence.

Indian men and women go about the streets with them for sale in cages. It is difficult to understand who buys them, for the potential customers are poor as poor, but the parrots sell. None of the other street venders wear more contented faces than those who deal in birds.

During the rainy season at Mazatlan the streets become torpid rivulets of mud. As the pack-horses pick their slow way over the uneven cobbles, the foul liquid spurts from beneath their hoofs and splashes waist-high on the house walls.

As some measure of protection against this mud bombardment, the pavements have been elevated two feet or more above the level of the street. The gallant gives the wall to the fair or to the stranger he wishes to honor. One crosses the streets by stepping-stones.

Marching along the pavement, one meets the eyes of parrots roosting on the swinging doors of the bar-rooms that dot the main street. They make sounds like corks popping.

Our parrot was a fat, high-shouldered, depraved bird who never spoke. He watched Mazatlan pass along the pavement with a sour and cynical eye, but when he saw us he fluffed up his feathers and gave way to a fit of helpless laughter. His body shook, his mean old eyes half closed, and his senile head laid on one side, precisely as a vicious old man might indulge in cruel laughter.

At first we enjoyed it, but later we became self-conscious and angry.

Not even the ten-foot snake that served as rat-catcher in our hotel could rival the parrot's fascination, though we admired the snake for his business acumen. When he set up in business he disposed of competition by first swallowing the hotel's cats (see page 489).

In the Indian tongue, Mazatlan is the Place Where the Deer Come Down to Drink, but it might well have been called the Place of the Girls.

Nor can pretty girls have a more dainty setting. The residential district of the town is set along the half-moon of the Bay of Olas Altas, or High Waves, in which the rollers from China come to break upon the beach.

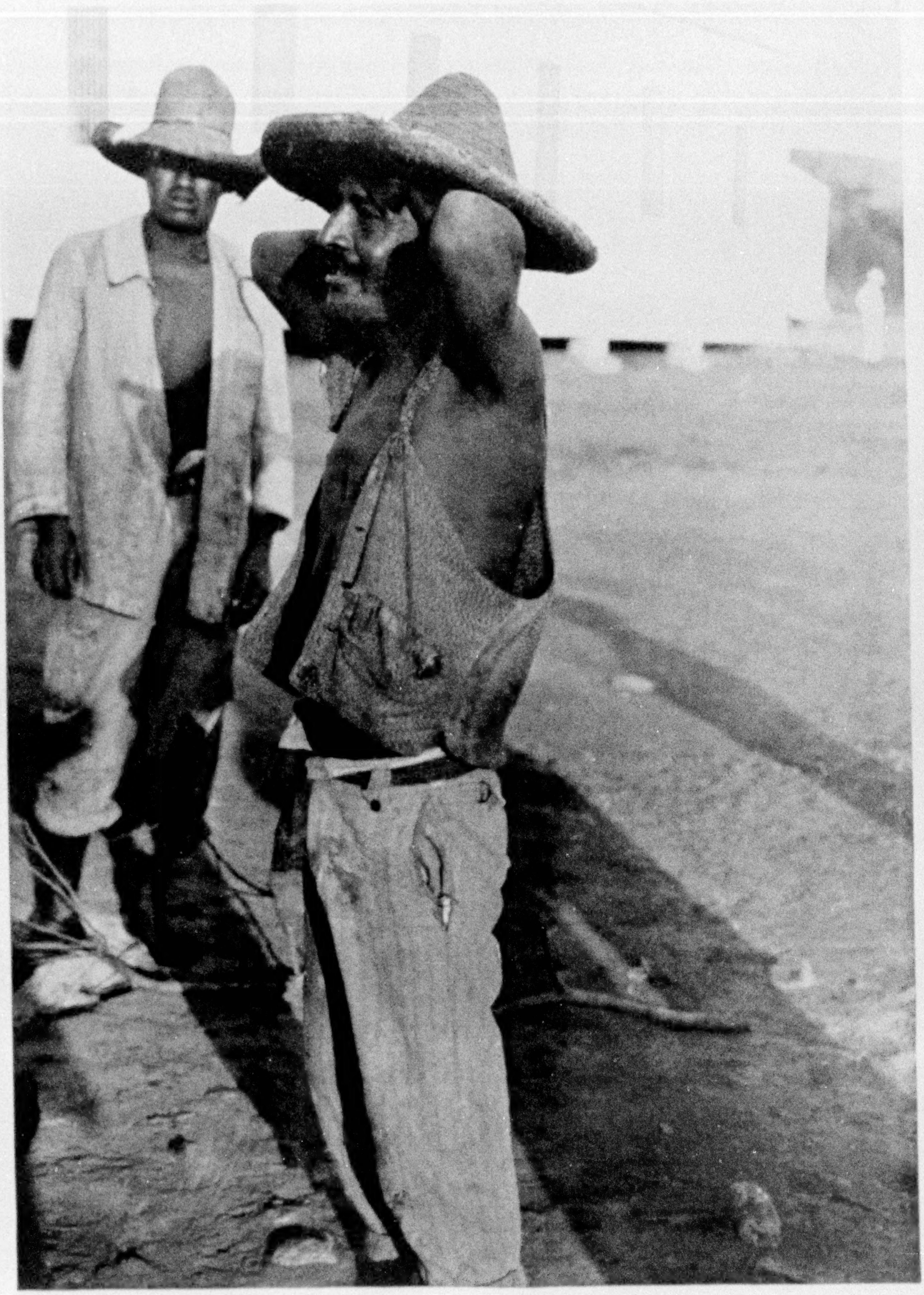
Out in the bay is set a needle of rock, just big enough to support a light, and the crescent is edged and barricaded by superb cliffs, along which a fine road has been built from the abandoned fort at one end to the shrine that tops a hill with its cross at the other (see page 485).

Culiacan had been of a dusty white, save for the azure cathedral, but here the houses are colored in blues and pinks and browns that might almost be of Bologna. These are no glaring colors, but washed and faded out to a demure background for the brilliance of the feminine display.

The sex here is cheerfully inconsistent, too. The grown-ups do not flirt, but the very little ones on their way to school withdraw very little powder puffs from little vanity bags and tone down the high lights on their little noses.

MAZATLAN A PORT OF FUTURE IMPORTANCE

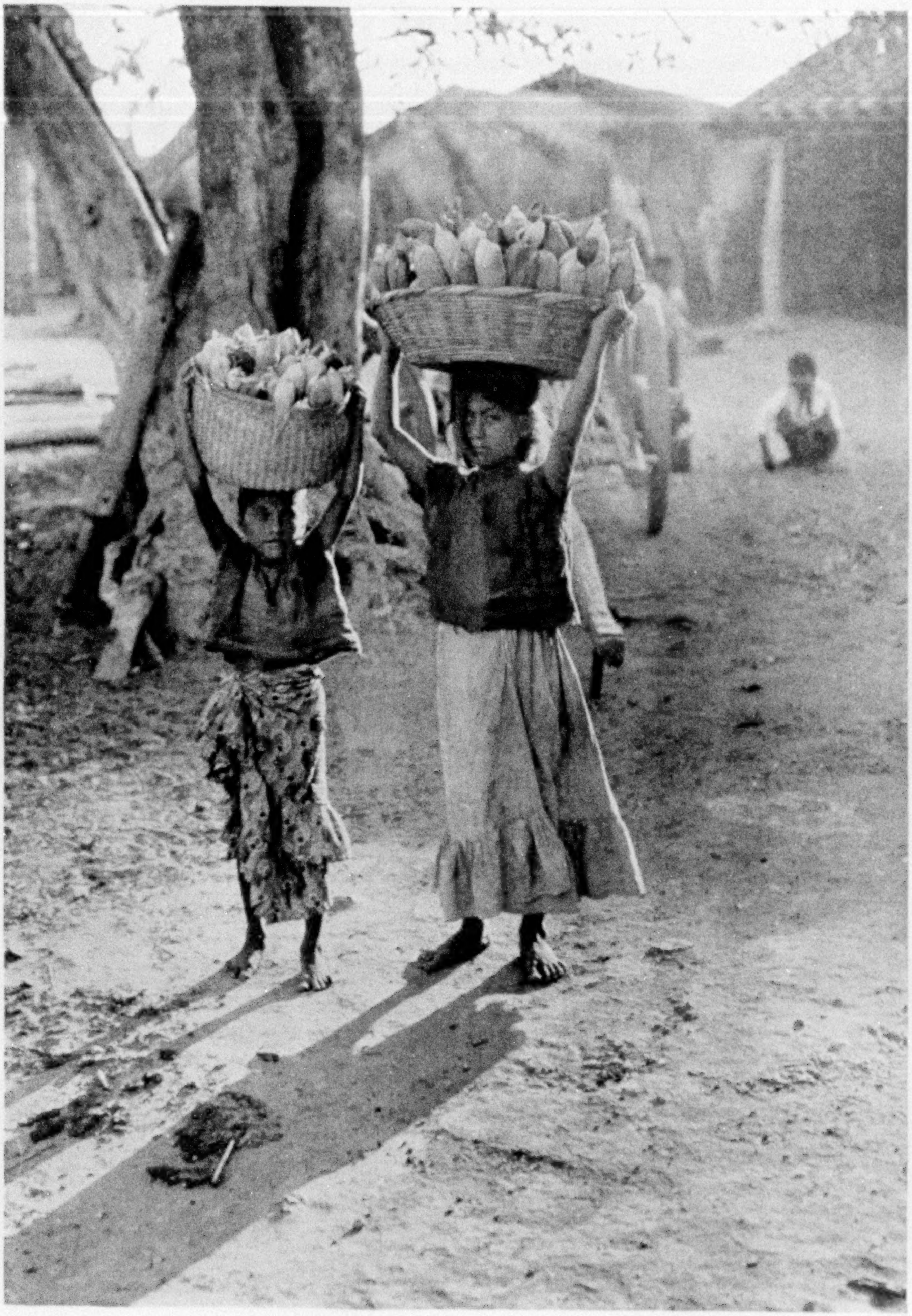
This will be an important Pacific port when the works now in contemplation are completed. Then large ships can come in through the island portals that protect the entrance.



THE MYSTERIOUS MAN OF LAS TRES MARÍAS

Only one man in this west-coast penal settlement could talk English. Oddly enough, he talked very good English indeed, though one would not guess it from his somewhat disheveled appearance. But he resisted efforts to reveal his life history.

XUM



ON THE WAY TO THE MARKET

The little Indian girls are on their way to the morning market in the isthmian city of Tehuantepec. They may have carried these heavy baskets of maize upon their heads for miles and thought nothing of it, for the Indians of Tehuantepec are famed for their burden-carrying ability.

The hinterland is a rich one, and before the war, was very prosperous. Only a day's ride away is Rosario, which has been a mining camp since the Spaniards' time. The old church there is made of cut stone fitted together without mortar, and once was almost plated inside with precious metals.

Back in the hills the lucky ones may get on good terms with the Indians. They are not hostile—precisely—but neither do they welcome strangers.

THE AZTEC GAME OF HIPBALL IS STILL PLAYED

It is near here that the game of hipball is played. The Indians use a solid rubber sphere weighing more than twelve pounds. It must not be touched with the hands, but is caught upon, or thrust by, the hip. It is a dangerous and exciting game, not often seen nowadays by white men, and comes to the poor Indians of to-day in straight descent from their proud ancestors.

In Aztec days courts were built with carved stone walls, and stone rings were set against them through which the ball was to be hurled. Successful players were often enriched by the delighted spectators. Archæologists have found the remains of these great courts in many places throughout the Republic (see illustration, page 500).

The waters about Mazatlan swarm with fish. There are more than 100 species and subspecies within a radius of 60 miles, of which 40 are of commercial value and 20 are found in sufficient quantities to permit of commercial canning operations.

Of these the most interesting from the non-expert's viewpoint is the striped mullet. They are such intelligent fish that they leap over the seines set by the natives.

But fish brain is not yet the equal of man brain, and the Indians set canoes at a little distance back of the net, into which the leaping fish shower by the hundred. When the fisherman has a canoe-load he paddles home.

To uncommercial-minded travelers the sight that never palled was the parade of wild birds along the crescent shores of the bay. One morning thirty wild geese flew over so low that we could see their beady little eyes glisten. A game shot could kill, anywhere along this coast, up to the limit of his shame.

SOMEHOW, THEY ALWAYS SEEM HAPPY

There are no more lovable people than the Mexican Indians, even though we admit their faults. They are always poor, often half starved, always more or less oppressed by the upper classes, and yet they always seem to be happy.

Even his conscience would be protected, for the buzzards doze with their toes in the edge of the surf, waiting for the flotsam of the bay, and they would dispose of his kill before he had time to grow morbid over murder.

EACH STUPID PELICAN ACCOMPANIED BY A ROBBER GULL

As I stood there watching the geese, two long strings of pelicans flew parallel with the sea wall, 40 feet in the air.

"Look at the gulls!" said my companion.

Each fishing pelican seemed to have its attendant gull. When the pelican seized his fish and disposed himself on the water to swallow it, the gull hovered near. The

THE ANCIENT GAME OF HIPBALL

These huge stones, now in the Mexican National Museum, served as goals in the ancient game. The players caught the rubber ball, weighing 10 or 12 pounds, on the hip or shoulder, never using their hands. The object of the game was to shoot the ball through the hole in the center of the stone. In the superb courts used by the ancients these stones were set in the walls, and players were sometimes made rich for life by the prize of a single game. Nowadays the west-coast Indians play the same game, but with a simple home-made equipment (see text, page 499).

pelican would juggle the fish about so that it would be headed south when he opened his bill. Then he would cant his head back over his shoulders and open his bill, so that it would drop into his pouch.

Then the waiting gull would take the fish and fly away.

The pelican would sit on the water in a half-dazed condition for a time. Then he would set about the business of getting another fish. It seemed to me that most pelicans acted as though they were discontented.

Ducks are not delicacies at Mazatlan. They are merely ducks. The Indians put nets on the water during the night and reap the birds when their feet are caught. One buys one's duck alive in the market, just as one does other feathered foods.

There is no standard rating in the markets on fish. One simply gathers up what fish one wishes, puts down a few copper coins, and moves on.

MAKING THE ACQUAINTANCE OF "A GAME LITTLE CODGER"

After an arduous and adventurous trip to the convict colony on Las Tres Marias (see illustrations on pages 494, 495, and 497), in the *Sin Nombre*, a small Mexican coastwise boat, one dawn found us in the Bay of Miramar, a half-moon on the coast of Nayarit. It was a perfect tropical morning. To the left a white-pillared house gleamed against the green background of the banana bush. White-clad figures moved about it and a boat or two was being run through the well-behaved little breakers and a bell tolled.

To the right the darker tones of the foliage told of a jungle as yet untouched. Parrots screamed overhead in a gossipy flight from one horn of the crescent to the other. On the beach a great crane stood on one leg, waiting for his breakfast to come to him, and grave pelicans, their heads cocked back in absurd hauteur, flapped heavily along the green surface of the inshore water as it sparkled in the early sun.

Now and then a fish hawk of sorts dropped like a thrown knife. He cut so clean that hardly a drop was thrown in the air, although he invariably sank his tail feathers in his dive. Nor did he ever come up without a fish.

Porpoises dived and dived and dived, until one tired of watching. A whale spouted in the entrance to the bay, fish leaped diamond-bright in the air, and sharks' fins slipped by.

Overside a little Indian watched me courteously from a dugout canoe. He lifted his hat when I caught his eye, and expressed a pious wish that God would guard me. That little Indian fascinated me. He proved to be such a game little codger.

He and his two brothers were on hand to lighter off bananas, for the water is so shallow that even a piepan like the *Sin Nombre* could not go within a quarter of a mile of the shore.

The dugout was a beauty. Its sides had been fined down to the average thickness of an inch, from one massive log, and its lines could not have been bettered by a Herreshoff.

After the morning tortilla and coffee, we broiled on the engine-house roof until it appeared that banana lightering might take hours; then we went ashore.

The gem-like manor-house proved to be a German possession, and the war was far from over at Miramar; and so we pushed on to the small inland village of Santa Cruz.

Pigs were asleep in the sun. The prattle of children's voices came to us through the interstices of the pole wall of the school. A great sow, two lesser porkers, and four dogs grunted and twitched and fought fleas convulsively in the mild draft of the school doorway. There were wattled houses with high conical roofs, a few tethered fighting cocks, some Indians asleep, dust shoetop deep, and a sweltering heat that was not relieved by even the faintest breath of air, for Santa Cruz is walled about by the jungle.

So we returned to the boat.

INDIAN BOYS AS BANANA STEVEDORES

As the sun rose the small Indian boy had deleted his apparel, bit by bit, until now he worked mother naked in the sun. His job was to stand shoulder deep in the water and hold the bow of the dugout from floating out to sea while his elders put the banana bunches aboard. Now and then he varied this by toting bananas.

He always pulled a sturdy oar in the journeys to and from the *Sin Nombre*,

A "LITTLE MOTHER" AND HER LITTLER CHARGE

Dolores was somewhat shocked but rather pleased by the photographer's suggestion that he picture her at her bath.

and as long as we were in sight he kept two round, unwinking black eyes fixed on us. So might a small American boy watch his first hippopotamus.

We cruised along the coast, here and there, taking on more bananas, which were brought on pack-mules from the hidden plantations of the interior. At last night came and the *Sin Nombre* pulled up her mud-hook for the run to the old port of San Blas, Nayarit, where we were to be put on shore.

AT SAN BLAS, WHERE CORTEZ BUILT HIS SHIPS

Once Cortez built ships here to explore the Pacific coast. Later on the high galleons from the Philippines entered San Blas with silks for the court of Spain. Now even the little coastal boats must use care in entering its sand-filled channels.

The dugout was towed behind, for it was to be used in putting us on shore.

It was a black midnight when the sturdy thumping of the *Sin Nombre's* engine was stilled and we were routed out from beneath our sail on the roof of the engine-house. The dugout was pulled alongside and we crawled in.

The *capo* was asleep in the stern, his dark blanket wrapped about his head. In the bow slept the second brother, his wide hat tilted over his eyes, his blanket around his shoulders.

In the waist sat the littlest Indian, an absurd diminutive of his brothers, even to the little knife in his wide sash.

LANDED PICKABACK

The moon was overcast by black, sliding clouds. We could barely make out the ragged tops of islands against the heavy sky. Long before we could see the white foam of the breakers, we could hear their roar as they charged the sand-choked entrance to the little bay.

And then the littlest Indian came into his own. He laughed. Bless his heart, how that boy laughed and chattered! He must have been tired to exhaustion, but his voice rang bird-like. The others recovered from a midnight grumpiness and in turn began to laugh and talk. Now and then the capo interrupted by a sharp order.

Several times the canoe was checked, until at last it was beached in the soft sand on the crest of a breaking wave. I climbed aboard the capo's shoulders to ride a dry pickaback to land and, as the capo was a slender Indian, I drove my unfortunate mount into the sand like a log under a pile-driver.

The littlest Indian twittered until the capo gasped with laughter and almost spilled us both in the frothy spume.

There were millions of hot-footed gnats in that sand, and they stung us almost to madness. San Blas bears a villainous reputation for the variety and venom of its insect pests, even on the west coast.

We danced and slapped and fumed while our dandy Indians undressed themselves in the darkness that was made visible by the reflected light of the hidden moon on the glancing waters of the bay. Then they redressed in clothes of gala white, which they had brought with them from their village of Santa Cruz for the entry into the big town.

The capo brought out a silver-handled

town knife from the bag in which these sartorial creations had been kept unspotted from the waves. So they led us into town.

A DISMAL SEARCH FOR A HOTEL

"Hotel," we said.

The Indians nodded. The sand was soft and deep. Our feet found the rails of a long-abandoned tram-line and found them hard.

A dog rushed us from an ancient, pillared portico. We blinked the darkness out of our eyes as we entered a whitewashed room in which a lonely boy of eighteen sat in the radiance of a tallow candle surrounded by an insect aureole.

We thought, poor fools, that we were in the hotel, but it was the custom-house. Even at such a port as San Blas one goes through the customs. The lonely boy helped us through the formalities and we stumbled again into the dark street. A policeman's whistle shrilled the hour and an iron bell clattered.

Perhaps if Caterina had known that two Americans were outside her doors she might have opened them, for Caterina has the name of being friendly to Americans; but she did not, and we said no word. We did not even know that the dark house was a hotel when the Indians stopped in front of it. No light was visible. No light was ever visible.

The Indians tapped lightly until from the inside a feminine voice told us to go away.

"Two señores desire a night's lodging," said the Indians, gently.

"Just country people," said the feminine voice, disparagingly. "Let them sleep in the street."

The keeper of the half-darkened saloon opposite rose from the chair on which he had been strumming a soft guitar and came to our aid. He knocked furtively at the door. He called for Caterina by name, and then for Dolores and Elena. The cold voice within stated that its owner earnestly desired that we be on our way.

"There is another hotel," said the keeper of the saloon, "but it is in bad condition."

The gods forbid that I should cry fie upon a lady's hotel-keeping, but it is a fact that the saloon-keeper was right.

WHEN ONE READS ABOUT THE "REBOZA"

Native girls and women are rarely seen without the shawl-like head-covering known as the *reboza*, though its color changes in the various States.

After all, Maria was of a good sort. She made no difficulties about admitting us, but threw her door wide open. Later we discovered her to be fat, kindly, and superior to any imported eccentricities about sanitation.

A FAREWELL TO THE LITTLEST INDIAN

The capo and the second brother smiled so that their perfect teeth shone in the darkness, as they lifted their hats in farewell.

The littlest Indian, his small face hidden in his serape, his little knife thrust in the folds of his little sash, his feet that had been bare all day smarting under the straps of the new sandals for city wear, smiled at us in the cheeriest fashion as he, too, lifted his steeple-crowned sombrero and strode out, like the villain of a midget melodrama, to the sights of the sleeping town.

Photograph by A. W. Cutler

"SORRIA-SE"

The amused expressions on the faces of these Lisbon orphans may perhaps be accounted for by the camera man's pronunciation of the word "Sorria-se," which is Portuguese for "smile." At any rate, the desired effect was achieved.

LISBON, THE CITY OF THE FRIENDLY BAY

By Clifford Albion Tinker

LEGEND has it that Ulysses founded Lisbon.

It may be so. For twenty years he sailed up and down the Mediterranean, and more than once during his wanderings ventured beyond the rocky Pillars of Hercules. And, too, the Phœnicians found a black-eyed, raven-locked tribe in Lisbon when they took possession. At that remote age the ancient town was called "Olisipo."

Sun-kissed on its eleven hills, Lisbon has all the delights of a salubrious climate; stretching for five miles along the banks of the mighty Tagus, it offers the finest harbor in Europe; seven miles from the open sea, it is protected from the Atlantic's gusty storms; it is the center of a rich and ancient province, the capital of a nation and the seat of culture and learning.

Lisbon is all this and more. It is the largest and most strategically located seaport on the remunerative ocean trade lanes between London and the Mediterranean on one hand, and between London and Cape Town on the other.

Lisbon is also the central metropolitan storehouse for Portugal's outlander colonies. Into its markets pour the tributes of the vine-clad Azores; the rich wines of Madeira; the tropical delicacies of the Cape Verdes; the vilest of tobaccos from Dakar; dyes and gums from Guinea; cotton, gold, and rubber from Angola; ebony, ivory, and grains from Mozambique; tea, rugs, and ivory from Goa, in India; more tea, silks, and fabrics from Macao, in China, and choice drugs and spices from Malayan Timor.

Lisbon is far from being decadent; it has increased in population more than 40 per cent in twenty years.

A SUPERB PICTURE WHEN APPROACHED FROM THE SEA

Approaching Lisbon from the sea, one's expectations are aroused by the sight of the Serra de Cintra, off on the port hand, veiled in purplish atmospheric haze—a sentinel mountain with saw-toothed ridge, which bears a castle where its craggy crest seems to melt into the sky. Ghostly towers reach up from this castle, and, as the ship hurries on and brings the sunlight bearing on the heights, the spires take on the appearance of ivory stalagmites on an iridescent base.

Now the ship plows along by Cape Roca, and on by Cape Raso, and the heavy cloud-masses which have been chasing behind us all morning, caught in a freshening breeze, suddenly and swiftly swing in over the land, enveloping the peaks of Monge and Peninha in a bonnet of whirling scud. Not until then did one appreciate the true height of those mountains; their summits are nearly eighteen hundred feet above the sea. The bold headlands of the coast, being closer aboard, dwarf them out of scale.

A FAMOUS WATERING PLACE FOR TWO THOUSAND YEARS

Leaving Cape Raso on the port quarter and standing broad into the bay brings into view the Riviera of Portugal. This lovely coast has been a famous watering-place for more than two thousand years. Immediately after the destruction of Carthage, at the end of the Third Punic War, Roman generals and senators flocked here to enjoy the baths and winter sunlight; for with the fall of Carthage the peninsula became a Roman province.

From Cape Raso straight on to Lisbon proper, there is scarce a break in the amazing array of palaces, forts, hotels, casinos, hamlets, and beacons lining the shore and spilling over against the hillsides which slope back to the open country. Smooth, sandy, curving beaches break the rocky coast-line at intervals, and on these bathing slopes long, rolling combers spread a line of soapy foam in direct contrast to the geyser-like spray dashing against the steep and ragged bluffs.

Ivory, gray, pink, and glistening white walls, topped with scarlet and orange tile, emblazoned against a background of bronze green, with the foliage of African and semi-tropical plants skillfully arranged for vista effects, make this stretch

Photograph from John Oliver La Gorce

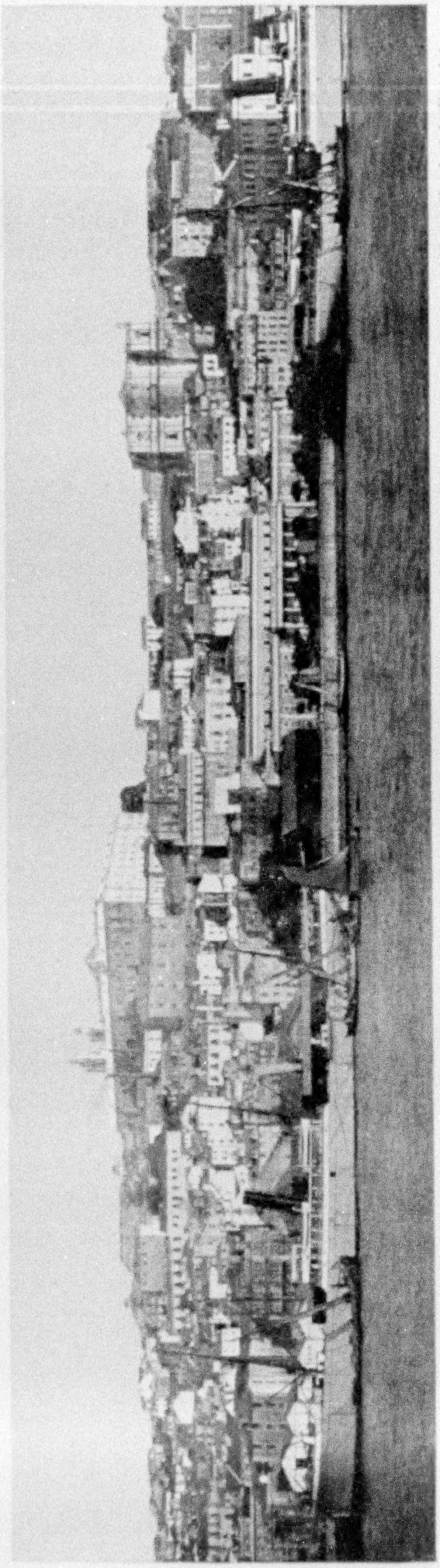
THE WATERFRONT OF LISBON GIVES THE HISTORY OF THE TAGUS IN TERMS OF BOAT CONSTRUCTION

Here are found various types of sailing craft, ancient and modern in design, and also the yawls and bateaux of the river fishermen and ferrymen. Some of these rowing craft are cumbersome and require the utmost skill on the part of the oarsmen, who dart in and out of the docks notwithstanding the ten-knot tide of the swiftly flowing river.

Photograph by A. W. Cutler

HAULING IN A SARDINE NET: A SCENE ON THE WATERFRONT AT LISBON

A goodly assortment of shipping in the River Tagus forms a background for the picture.



Photograph from Frederick Simpich

IN MASSES OF IVORY, ORANGE, AND RED, SHOT WITH SPLASHES OF WAXY GREEN FOLIAGE, LISBON RISES IN TERRACES FROM THE WATERFRONT TO ITS ELEVEN HILLS

Conspicuous on the sky-line are the barracks of the Fifth Infantry, once the Convento da Graça, behind which is hidden the Graça Church, only its two belfries showing.

of seashore one of the most charming in all Europe.

Such is the approach to Lisbon.

There, just abeam, is gem-like Cascaes, the ancient home of kings, palm-studded, brilliant with color. Citadel, monastery, antiquated forts, and palaces vie with magnificent residences in a gamut of architectural rivalry.

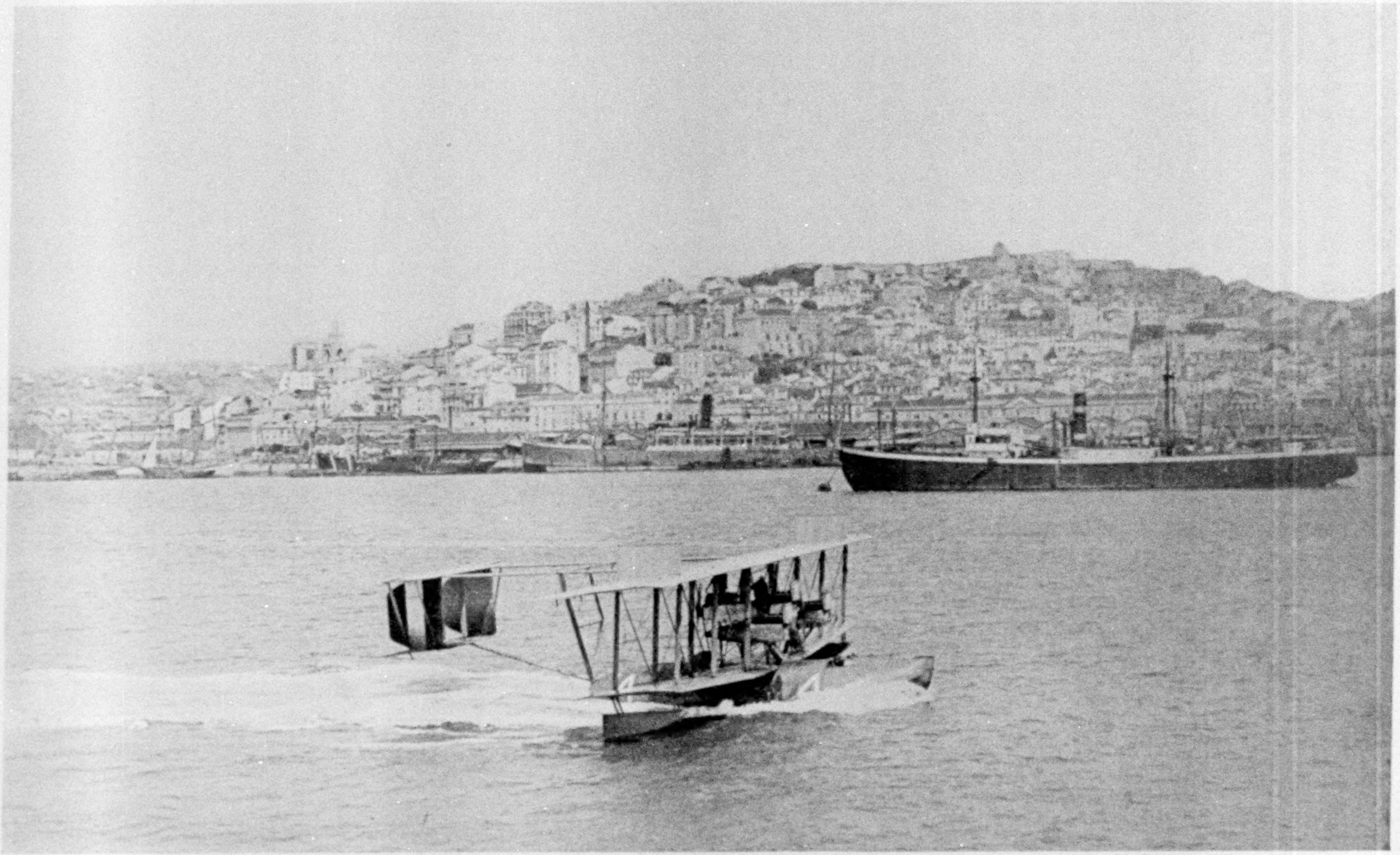
MONT' ESTORIL, GEM OF RESORTS

A short mile up the coast is the hamlet of Mont' Estoril, the most appealing of all resorts. Here is the acme of luxurious spas.

The mineral springs of Estoril became famous early in the 18th century, their fame increasing with the years. Hence the development of the little straggling village into a matchless garden spot, with palaces, casinos, and elaborate estates. The town is one immense bower of foliage and bloom. An unfailing water supply, permitting constant irrigation even during the driest seasons, rewards the horticulturist with the crispest leafage and the choicest flowers in a land of blossoms.

Geraniums multihued, roses of every shade, acacias, heliotrope, eucalyptus, broom, and palm line the streets, crowd the gardens, and screen to privacy the handsome villas along the slopes. Estoril is a riot of color, but among its blossom-scented terraces are quiet walks, shady arbors, and restful vistas of the spreading opal bay (see Color Plate I).

To avoid shoal water, dangerous to ships deep-laden, one must now steer to starboard farther into the bay. This change in direction brings the gleaming cupola of Estrella on the sky-line between Fort St. Julian and Fort Bugio, which straddle the channel. Shortly thereafter the Ajuda Palace comes out clear against



U. S. Navy Official Photograph

THE MOST FAMOUS OF SEAPLANES, THE NC-4, IN THE RIVER TAGUS

Just above the tail assembly of the plane may be seen the belfry and tower of the Sé, the oldest church in Lisbon, founded in the 4th century. Lisbon was the first "port of call" in Europe of the United States Navy's transatlantic pioneer, May 27, 1919 (see text, page 514).

Drawn by A. H. Bumstead

A MAP OF LISBON AND THE FRIENDLY BAY

The enthusiasm of those who have approached the Portuguese capital from the sea has given rise to the old saying that "he who has not seen Lisbon does not know what beauty is."

the sodded hillside in all its enormous bulk.

Down the hillside, below the palace, at the water's edge, is the unique old Tower of Belem, a relic of Manueline stonework, while at the right of Estrella's marble beacon looms the Castello de São Jorge, old, but bold and commanding (see illustration, page 513), and still farther to the right sparkles the roadstead.

TRAVERSING HISTORIC WATERS

The "Friendly Bay," so named by the Phœnicians, "Alisubbo" in their tongue, is filled with shipping. A certain well-known flag is much in evidence, for the harbor is dominated by a squadron of battleships of the United States Navy, their decks crowded with blue-clad middies on their annual practice cruise. Weirdly the gray-painted "basket-masts" of the huge battleships are silhouetted in line against the vine-draped slopes and banks of Almada, a suburb of Lisbon.

All this time the bay ahead is dotted with leg-o'-mutton fishing craft, boats just like the Phœnician boats of old, their sails many-hued, their prows turned up and carved and painted in fanciful style. Away off to the south you see them clustered over against Cape Espichel, and others trailing off into the mists which cover the broad reaches of Setubal Bay.

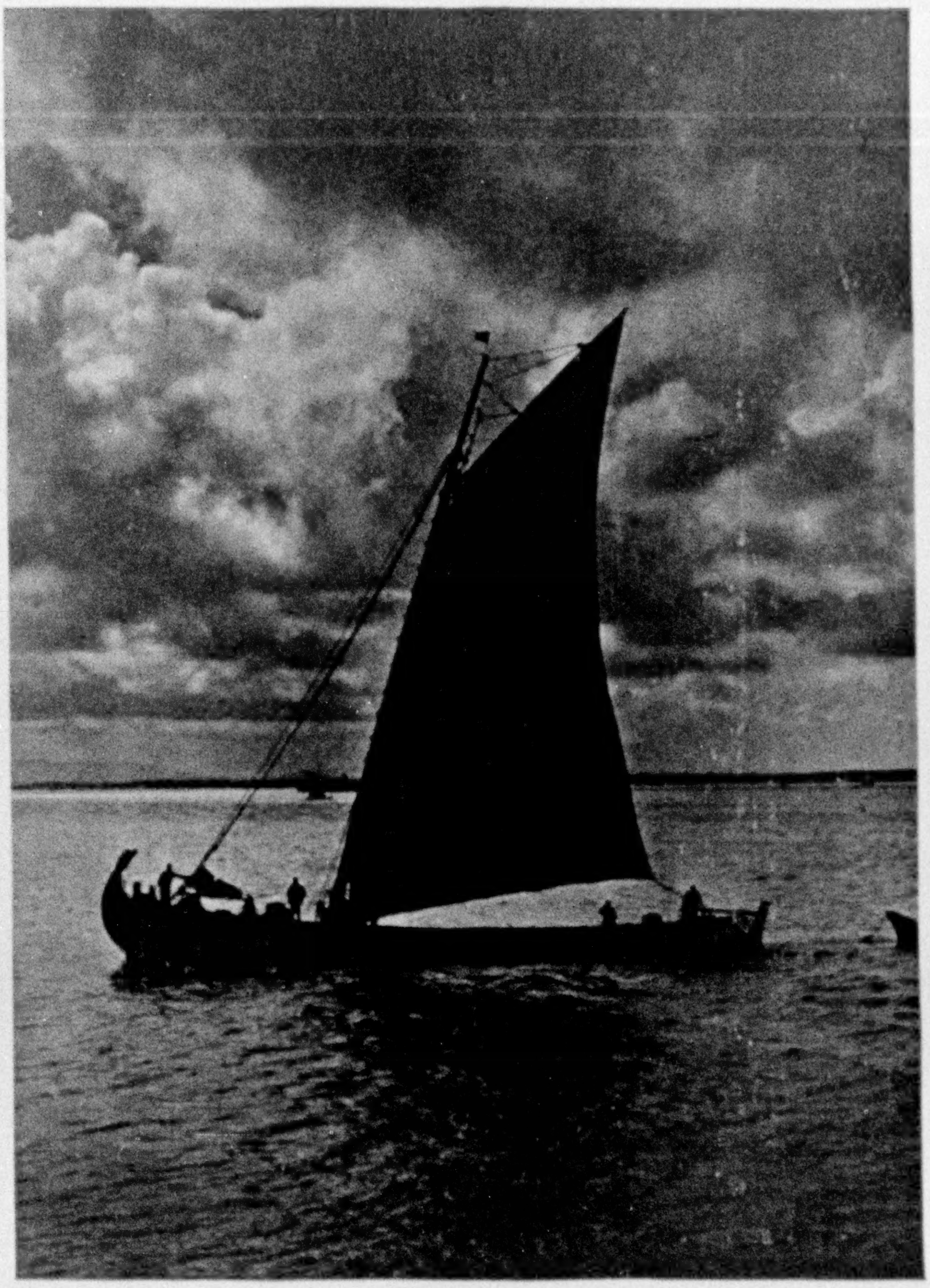
As we neared Lisbon Bar, off Fort Bugio, some one mentioned the fact that ages of history had left romantic telltales throughout this sunny land of Portugal, and that the very bay about us had a proud record in the annals of seafaring nations.

It's true. Your ship is traversing historic waters when entering the Tagus. Back and forth through these channels passed Greek, Phœnician, and Roman galleys and triremes; Moorish and Spanish caravels and galleons; the tree-banked rowing ships of northern Crusaders; the high-pooped, open-waisted sailing craft of Henry the Navigator, half-English, half-Portuguese landlubber prince that he was, while a long list of gallant sea-rovers and doughty, venturesome voyagers of the golden age of maritime romance knew the waters of the lower Tagus by heart.

One need only cull from school-day memory to find that history shows Lisbon and the Tagus to have played the strong "historical trump" in a number of epoch-making events. For one fact, the day of our arrival in the bay was the 424th anniversary of the departure of Vasco da Gama from Lisbon for India by way of the Cape of Good Hope on a voyage which tested the skill, courage, and faith of the great navigator and, by its successful conclusion, made him the Portuguese national hero of the age.

Again, 334 years ago the Invincible Armada of Spain and her vassal, Portugal, under the Duke of Medina Sidonia, gathered in the "Friendly Bay," and on May 20, 1588, swept down the Tagus to the sea with all the pomp of the mightiest empire of the age—a fleet of 130 ships, rating 57,868 tons, armed with 2,431 guns, and manned by 30,493 veterans of Spanish conquest.

The first sight of the Armada off the English coast was the signal for battle, and from that day, July 19, until the final great encounter off Gravelines, France, on July 29, the English fleet under Howard of Effingham and his lieutenants, Drake, Frobisher, and Hawkins, gave Sidonia a running fight which whittled his force to impotency, at the same time giving England the start which placed her in the proud and highly satisfactory position of Grandmother-in-Chief of the Seven Seas—a position she still enjoys



Photograph by A. W. Cutler

THE HULLS OF PRESENT-DAY PORTUGUESE FISHING-SMACKS HAVE THE LINES OF ANCIENT PHŒNICIAN CRAFT

Even the carving on the high prows proclaims the origin of these sturdy boats, which give a colorful interest to the waters of the Friendly Bay.

THE CITY RESEMBLES AN UNDULATING FIELD OF COLORED MARBLE

As our ship gained the offing south of Lisbon Bar, a rakish-rigged schooner "wore ship" under our very bow and slid alongside on the windward hand. On her quarter we read "Pilotos," and a queer legend, made up of letters and figures, reached nearly across her mildewed mainsail.

The dark-complexioned pilot once on board, his credentials as a member of the "Corporation of Pilots of the River Bar of Lisbon" duly acknowledged, and his right to collect five good American dollars for every foot of water our ship drew grudgingly admitted, we speeded up and pointed our steel prow in the direction of the channel between Point Lage on the port hand and Point Calha on the starboard, boundaries of the narrow gateway into Lisbon Harbor.

In a few moments we could see the tile-roofed heights of Lisbon. With that sky and that sunlight the city shone like an

Photograph by A. W. Cutler

A REMARKABLY FINE VIEW OF THE HANGING GARDENS OF PEDRO DO ALCÂNTARA

The upper garden and praça are at the left, behind the wrought-iron fence. The Cidade Baixa, or "low city," lies off to the right, down the hill. Lisbon has many pretty little gardens like this one, though few show such a collection of palm trees. It is situated at the summit of the very steep hill known as the Calçada da Gloria.

Photograph by Edgar K. Frank

ACROSS THE CIDADE BAIXA FROM THE "HANGING GARDENS" OF PEDRO DO ALCÂNTARA

From this point the Castello São Jorge looms high and commanding. Here the Moors began their city, and here the great earthquake of 1755 spent its force, vainly, for the buildings are a thousand years old.

immense field of undulating colored marble set with jewels and precious stones.

Few towers or pinnacles accentuate the city's vivid sky-line. They are not needed. The natural contour of the site on which the city spreads its marble and tile loveliness affords a sky-line in itself of singular impressiveness.

Lisbon is unique in this respect. Nature has saved the Lisbonese the trouble and expense of rearing lofty domes and minarets. Eleven hills, set down like giant chessmen beside the Tagus, covered with gleaming buildings, immense gardens, and rambling palaces and battlements, would not gain much by the addition of incongruous towers hostile to the prevailing architectural style.

A MIGHTY TIDE IN THE "FRIENDLY BAY"

Passing through the narrows and swinging to the right along the depths of the main ship channel, we soon gained our anchorage.

No sooner had we moored ship than it became evident that a mighty tide flows in and out of the "Friendly Bay." On this occasion the tide was outward bound and making a "good" ten knots. We tailed straight down stream, although a strong breeze was blowing in from the sea.

There is nothing particularly strange about this when one considers that the bay or estuary of the Tagus opposite the city is but little more than a mile wide, while immediately above it opens out to a tidal lake from four to eight miles wide and nearly twelve miles long. The water in this lake is very deep; consequently there is a tremendous volume, requiring an outlet and inlet through the estuary with each rise and fall of the tide, while behind it all is the onrush of the Tagus itself, bearing the run-off from an enormous area.

The Tagus is one of the really great rivers of the Iberian Peninsula. It rises in eastern Spain, among the Sierra de Albarracin, in the Province of Teruel, hardly sixty miles from the Mediterranean; thus it flows nearly the whole

Photograph by Clifford Albion Tinker

A MUNICIPAL STREET ELEVATOR IN LISBON

This is one of the methods of gaining the heights of the city from the lower levels of the Cidade; it is one of the best methods and is never lacking in patronage. From the Rua da Santa Justa this *ascensore* rises to the iron bridge spanning the Chiado and leading to the Largo do Carmo, eight or nine stories above the "shopping district."

width of the peninsula. Far-famed Toledo is on its banks, and beautiful Alcántara also.

ALMADA IS LISBON'S BROOKLYN

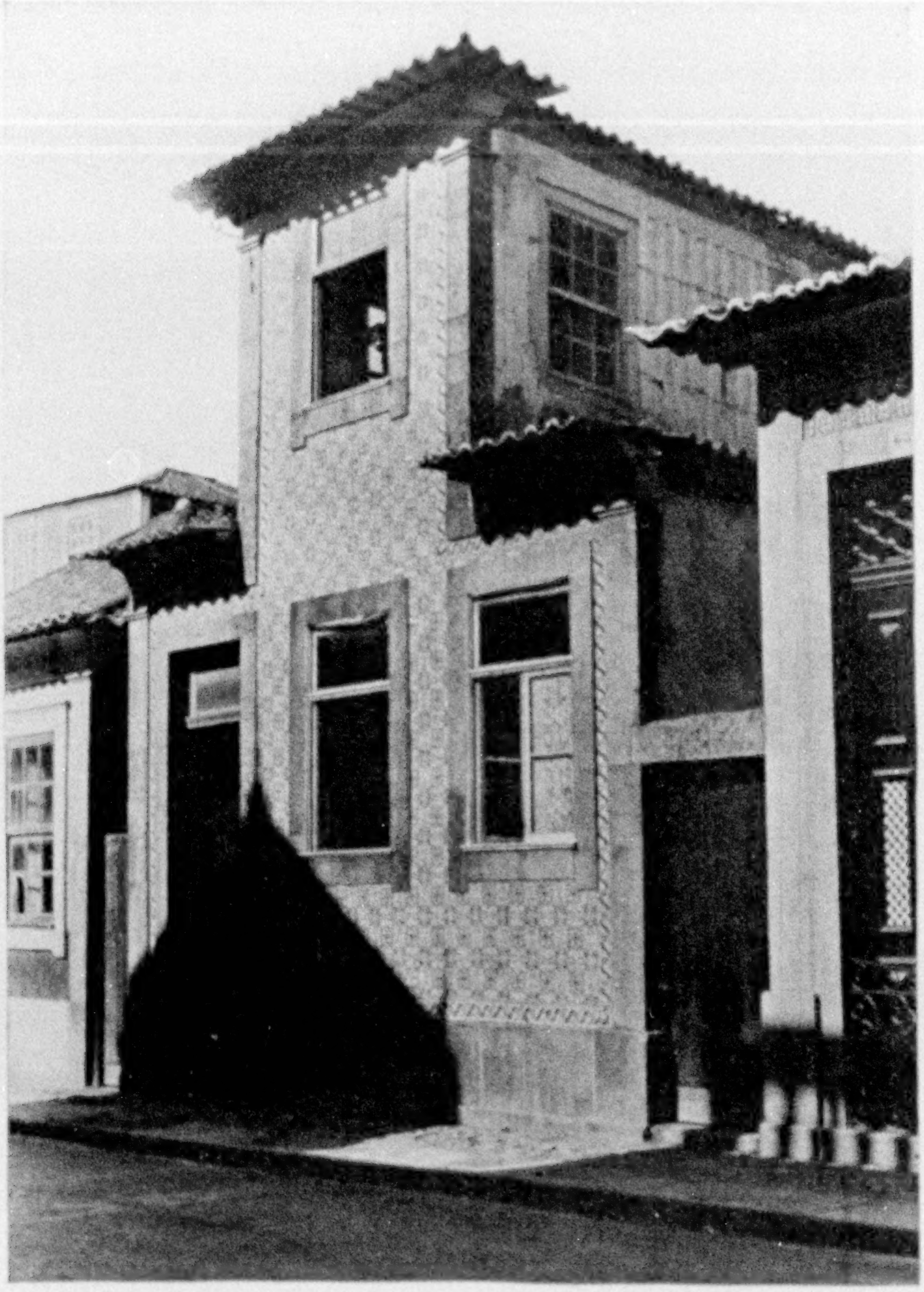
Our ship was moored a short distance off the docks of Almada, a full mile, however, from the public landings of the Praça do Commercio on the Lisbon side of the estuary.

Almada is a modest suburb of Lisbon. From the ship we could see a small town hanging by its eyelash, so to speak, from a green and yellow hillside. An old fort crowns a hill to the eastward, and a range of quaint houses, broken by several garden-like *praças*, or squares, lies between the mouldering barricade and the interesting old chapel of São Paulo, perched on another little hillock to the west. Dwarfed replicas of British Channel packet-boats ply as ferry craft between Lisbon and this miniature Brooklyn.

Almada is not without its claims to fame. English Crusaders settled here in fairly large numbers after the capture of Lisbon from the Moors in 1147. The followers of the Cross, delayed en route to the Holy Land, glad of an opportunity to deal the Moslems a body-blow, joined the Portuguese forces of Dom Affonso Henriques, sailed into the Tagus, and drove the Moors out of Lisbon into the mountains back of Cintra.

Directly in line between our ship and the praça, swinging and bobbing in the choppy tide, was the selfsame mooring buoy to which the NC-4 was made fast on May 27, 1919, when she landed in the Tagus after winging her way across the Atlantic, the first aircraft of any type to join America and Europe by the aërial route.* Her skipper, Commander Albert C. Read, U. S. N., the "Columbus of the Air," reversing the voyage of Columbus of old, made Lisbon the 20th-century San Salvador. Nothing can rob the city of that distinction.

* See "The Azores, Half-way House of American Transatlantic Aviators," by Arminius T. Haeberle, in THE GEOGRAPHIC for June, 1919.



Photograph by A. W. Cutler

A PORTUGUESE HOUSE DECORATED WITH COLORED TILES

Some of the patterns of these tile decorations look like the paper which adorns a well-kept bath-room.

The Lisbonese call Read the reincarnation of Vasco da Gama. Pride in their share in the historical air voyage is only equaled by their hope that Lisbon will become a leading airport for future transatlantic commercial airliners. Who shall say that such a hope will not reach fruition?

A PHŒNIX AMONG CITIES

From the ship's deck the whole waterfront of Lisbon was visible; twelve miles of clean shoreline stretched out before us. To the west one could see as far down the coast as the green-gold suburb of Paço d'Arcos and the little hill-town of Carcavellos perched above it, although a mile or two beyond.

To the east, up the Tagus, the eye followed the city until it swept out of sight in a great bend to the northward beyond the noble buildings of the Asylo de Dona Maria Pia. In direct line behind the Ajuda Palace loomed the "Paps," three hilltops, each between four and five hundred feet high—one topped by a beacon for the benefit of mariners coming up the river channel, and one by a wireless station which keeps Lisbon in touch with the world beyond the seas.

Looking at the beautiful city, strung out for miles along the heights above the swiftly flowing river, one can scarcely credit the fact that the cruel earthquake of 1755 all but wiped it out of existence; that nearly all the buildings between the Ajuda and the Castle of St. George have been built since that date. Yet such is the case. Lisbon is a Phœnix among cities.

Then came the sunset. Not a cloud besmirched the sky. Not a single brilliant ray from that ruddy gold disk missed its mark on the heights before us. The splendor of the scene was heightened by a background of rose-tinted summer sky. No wonder the Moors coveted this region. Their luxury-loving Semitic minds saw in Lisbon, the "Felicitas Julia" of the Romans, a new and opulent capital for their growing European empire.

Having gained possession of the city, they dropped the Roman name and gave it one of their own; but it was still the

"City of the Friendly Bay"—in the Moorish tongue, "Al Aschbuna." From this Moorish name was derived the later mongrel name "Lissabona," and upon the complete subjugation of the region by the Portuguese this later name became the present "Lisboa," with its Anglicized version, "Lisbon."

THE HEART OF LISBON

As the sun's dip over the crest of the western hills brought twilight shadows across the city, I put ashore at the Praça landing. Sardine fishing cutters and smacks filled the basin along the seawall, their sails like Joseph's coat of many colors, while running boats from the squadron in the harbor monopolized the landing steps on either side of the square.

Once ashore and striding across the huge square, flanked as it is on three sides by magnificently colonnaded buildings, a triumphal arch of monumental proportions on the side opposite the river bank and a striking equestrian statue in the center, one wonders why other large seaports do not do these things, and why beauty and practicability are not more often wedded in municipal undertakings, especially waterfront undertakings.

The Praça do Commercio, once famous as the Terreiro do Paço, or place of the palace, known to sailors the world over as "Black Horse Square"—this last because of the statue—is one of the rebuilding projects of the Marquez de Pombal, to whom Lisbon owes her rebirth after the catastrophe of 1755.

The bronze horseman and steed in the Praça are effigies of King José and his favorite charger. The great Government buildings which flank the square on three sides are the Chamber of Commerce, the Palace of Justice, the Customhouse, the House of India, the General Post Office, the War Office, and other administrative departments. These magnificent buildings of the Pombaline style cover the former site of the Government Palace, the Caza da India, the Opera, and the grand Library of Old Lisbon, all shattered by the earthquake.

A MODEL OF CITY PLANNING AND OF CLEANLINESS

Passing under the triumphal arch, one immediately finds himself in one of the cleanest and most interesting cities in Latin Europe. It is clean in more respects than the mere absence of rubbish in the streets. To be sure, the streets are clean, for Lisbon has one of the best sewerage systems of any European city; it also has a wonderful water-supply system, thanks to Pombal. The buildings are clean, the shops are clean; so are the shopkeepers and their stocks. The street urchins are clean; yes, and so are the ragged beggars.

But, what counts most, Lisbon, as Latin or southern European cities go, is morally clean. It is not immaculate or sinless, but no large city abroad has fewer homicides, less thieving, or is troubled with social problems of such insignificance in comparison.

Lisbon is interesting as a study in municipal planning. It is an index of the versatile mind of its builder, Pombal, who was in mental combination an engineer, an architect, a financier, an administrator, and man of vision. His civic schemes were a century, and in some details two centuries, in advance of contemporary builders. The rest of Europe has hardly caught up with his building methods. His laws for the construction of buildings to forestall damage by earthquake tremors and shocks are still enforced, and they have saved the city several times since his day.

THE PORTUGUESE LANGUAGE IS DERIVED FROM MANY SOURCES

Lisbon is further interesting to visitors because of the conglomerate population within its limits. Here may be seen representatives of all the various nationalities which, fluxed into homogeneity, characterize the urban population of Portugal to-day.

The Portuguese language is like the Portuguese race, polygenetic. Ancient Greek, ancient and low Latin, Spanish, Gallegan, French, Moorish, a strong Celtic influence, and certain borrowings from the Hebrew, East Indian, and aboriginal Brazilian, together with some obscure items, such as two diphthongs from the Chinese, go to make up the grammatical construction, etymology, and pronunciation of modern Portuguese.

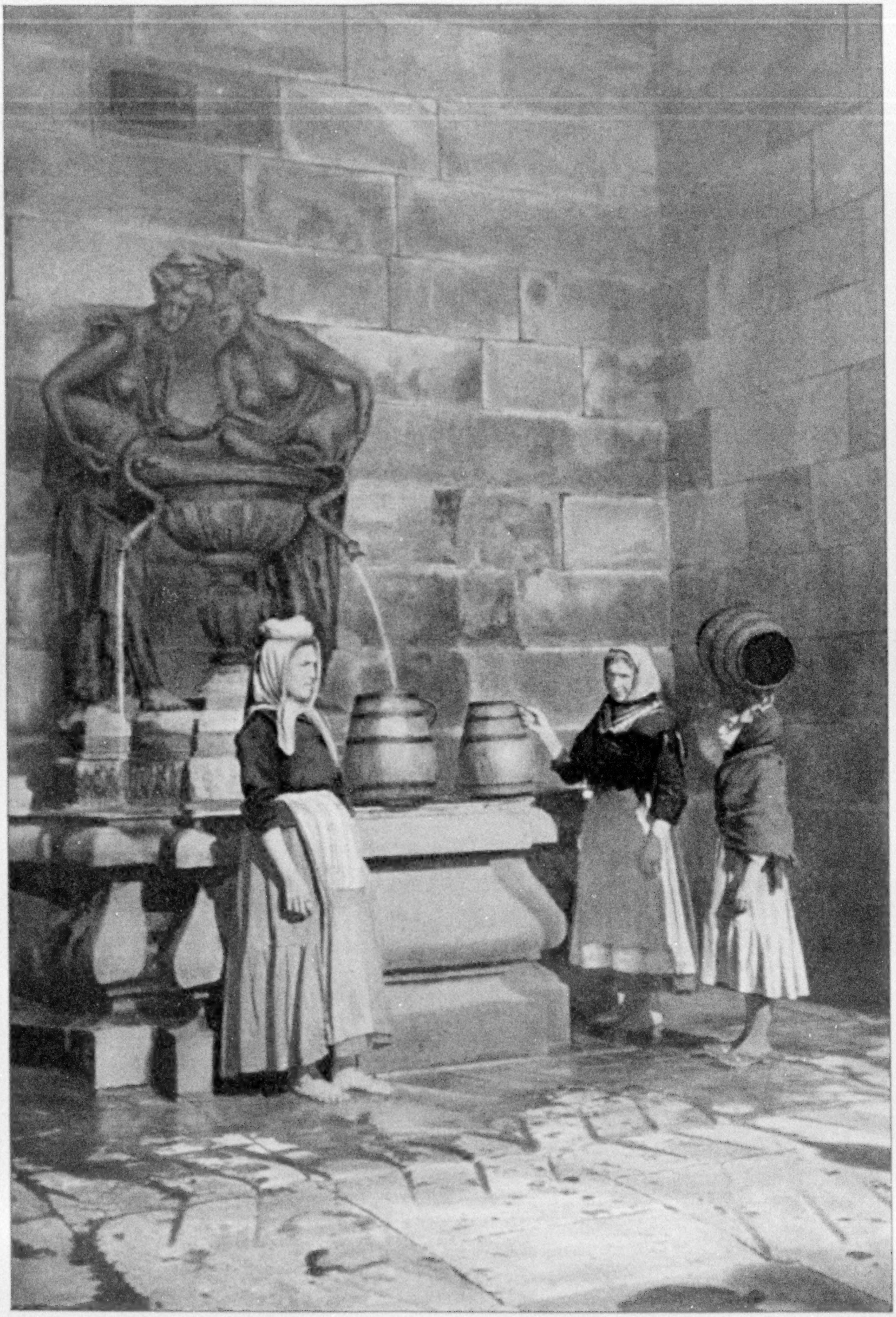
All of the above variants are easily identified in the language and show the

Photograph by A. W. Cutler

IN THE HEART OF THE PORTUGUESE RIVIERA

Monte Estoril, nestling in a ring of hills on the seashore near Lisbon, is a favorite summer resort of wealthy residents of the Portuguese capital. It is bowered in a profusion of subtropical fruits and flowers, which provide an enchanting setting for its palatial villas.

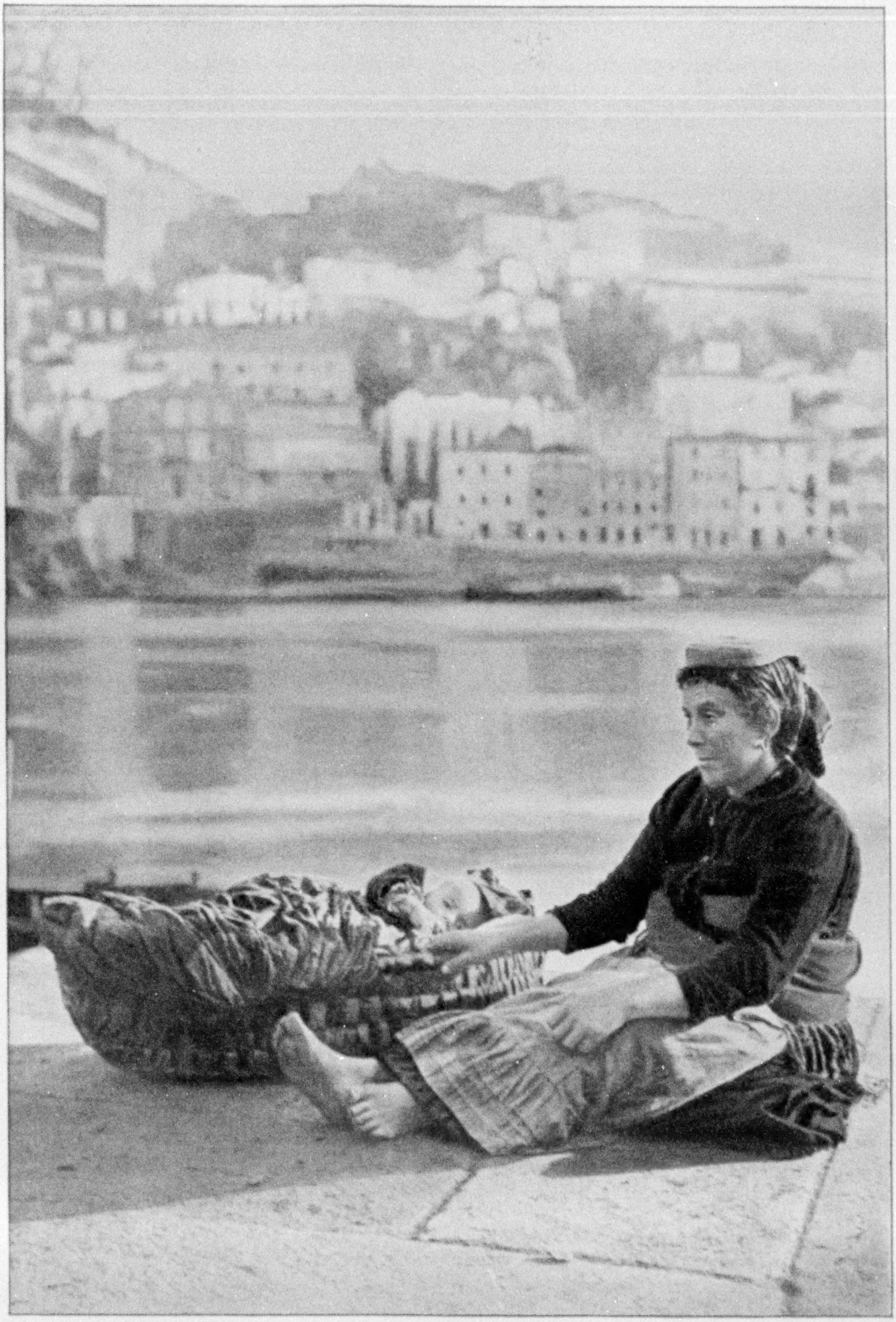
XUM



Photograph by A. W. Cutler

WHERE WATER AND GOSSIP FLOW IN OPORTO

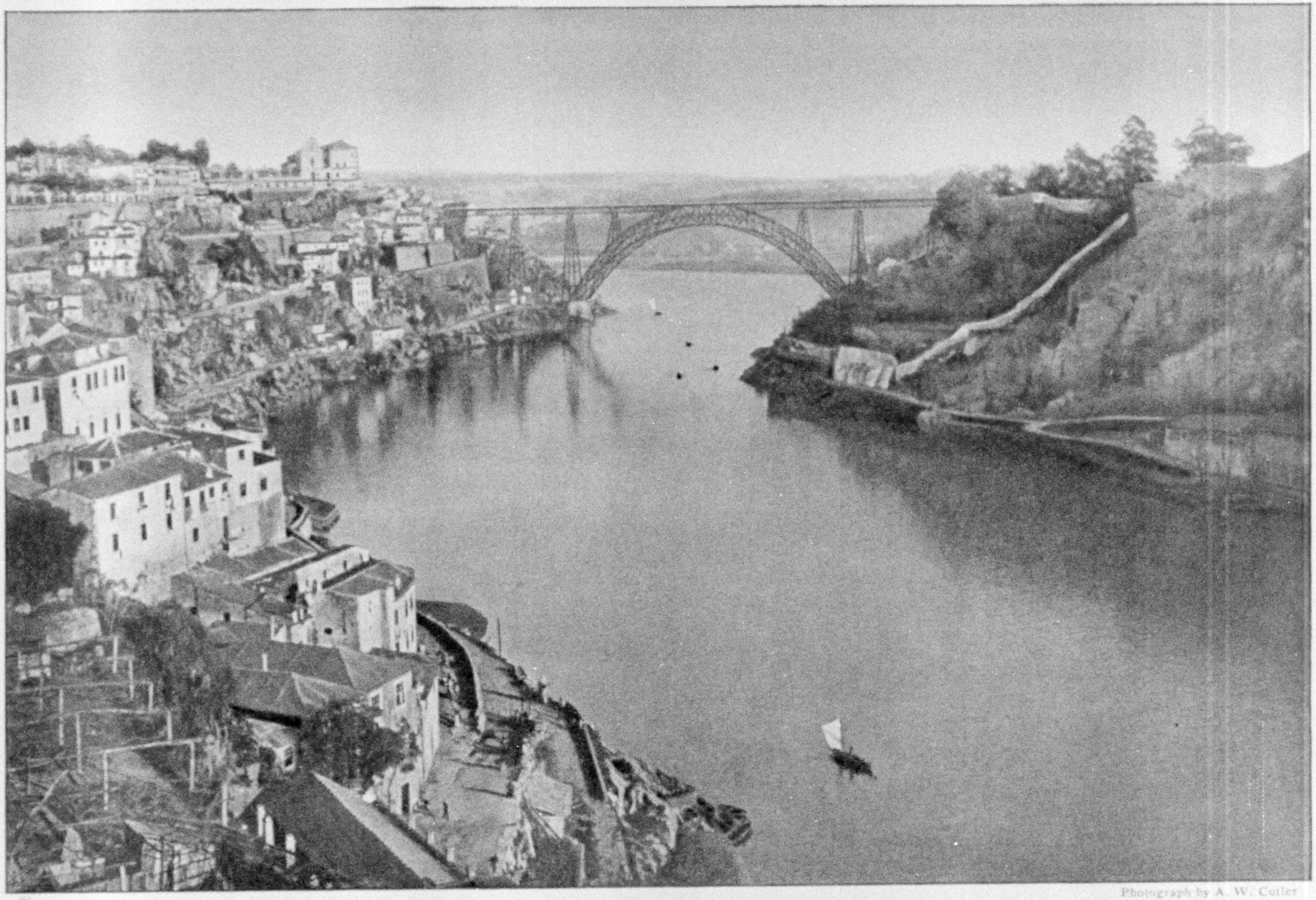
Even the women of bronze put their heads together for sociable chatter at Oporto's famous sculptured fountains. The water casks used by the women in carrying home their supply are called canecas. The pad of cloth on top of the head is used to steady the burden.



Photograph by A. W. Cutler

ON THE BANKS OF THE DOURO

With Oporto rising in tinted terraces across the river, this Portuguese mother rests for a moment from her task of loading and unloading the river boats. She bears most of her burdens of brick, coal, and casks of wine on her head. The baby in the basket is left to himself during most of the long day.



Photograph by A. W. Cutler

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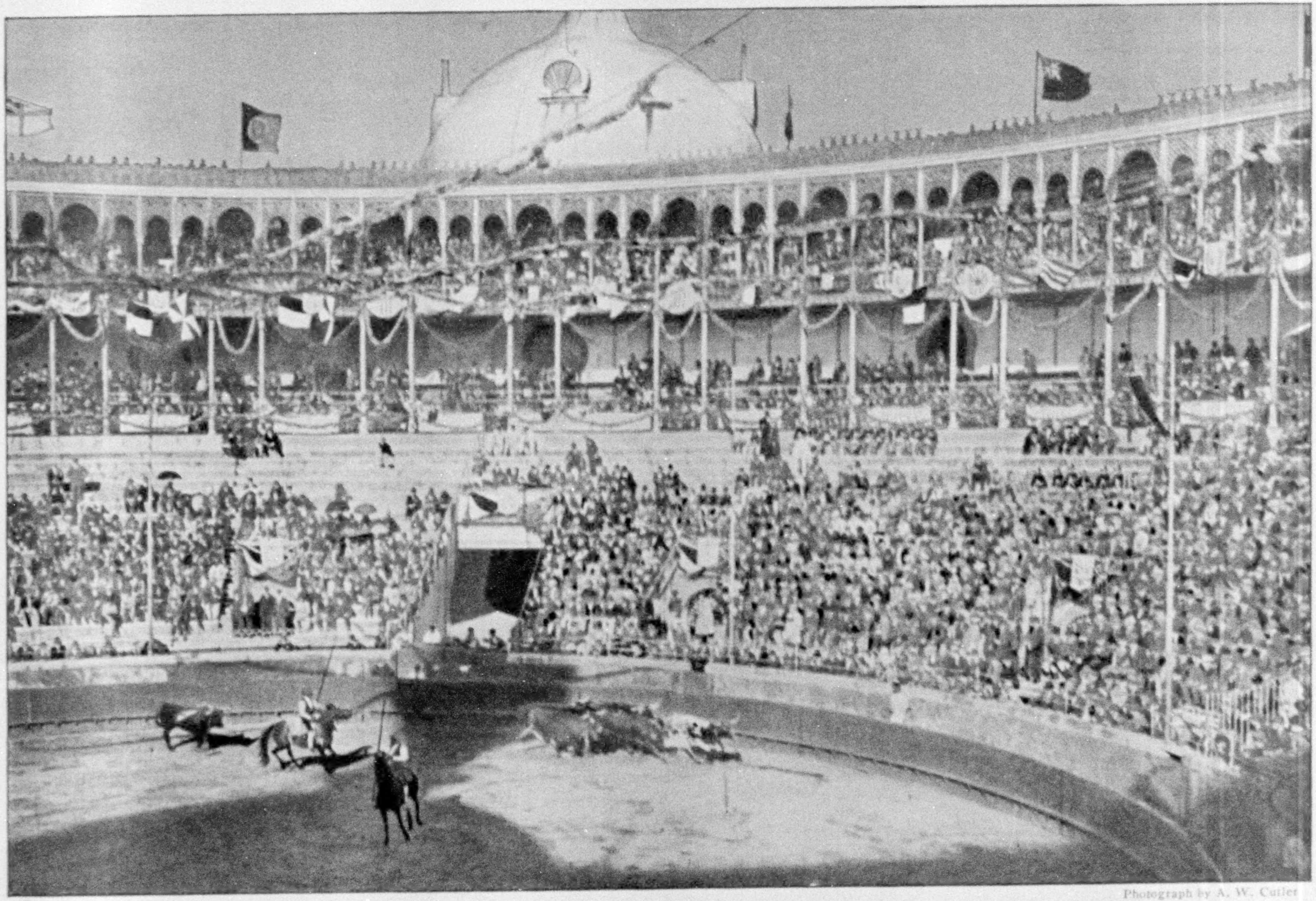
PORTUGAL'S FINEST VIEW: THE MARIA PIA BRIDGE OVER THE DOURO RIVER SEEN FROM THE ALAMEDA DAS FONTAINHAS, OPORTO

From this favorite promenade the orange and fig trees, the trailing vines, and the pink and blue tiled houses clamber pleasingly up the banks of the river. The flat-bottomed boats, driven by a single square sail, handle yearly thousands of casks of that mellow red wine which made Oporto famous.



Photograph by A. W. Cutler

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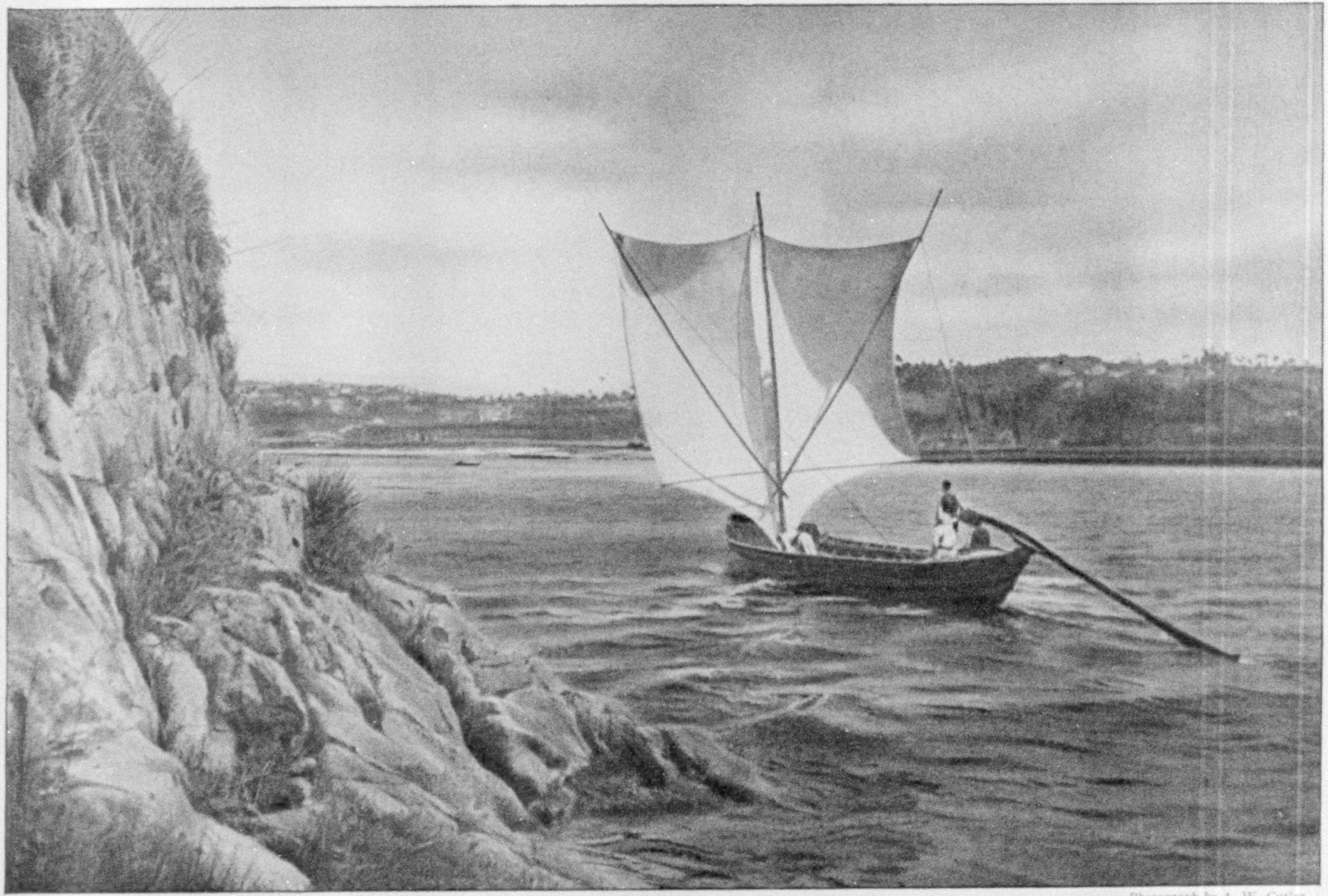
LISBON AT THE BULL RING

The Portuguese bullfight is a far more humane sport than Spain's exhibition of blood and sand. A skilled horse and rider pit their wiles against those of the bull, whose horns are usually cut and padded. When the fun has lasted about ten minutes, a number of cows are also admitted to the ring, as here seen, and the bull mingles with them while horsemen try to pick the banderillas off the animal's back with the aid of their long sticks.

© Photograph by A. W. Cutler

AT ONE OF BRAGA'S FOUNTAIN SHRINES

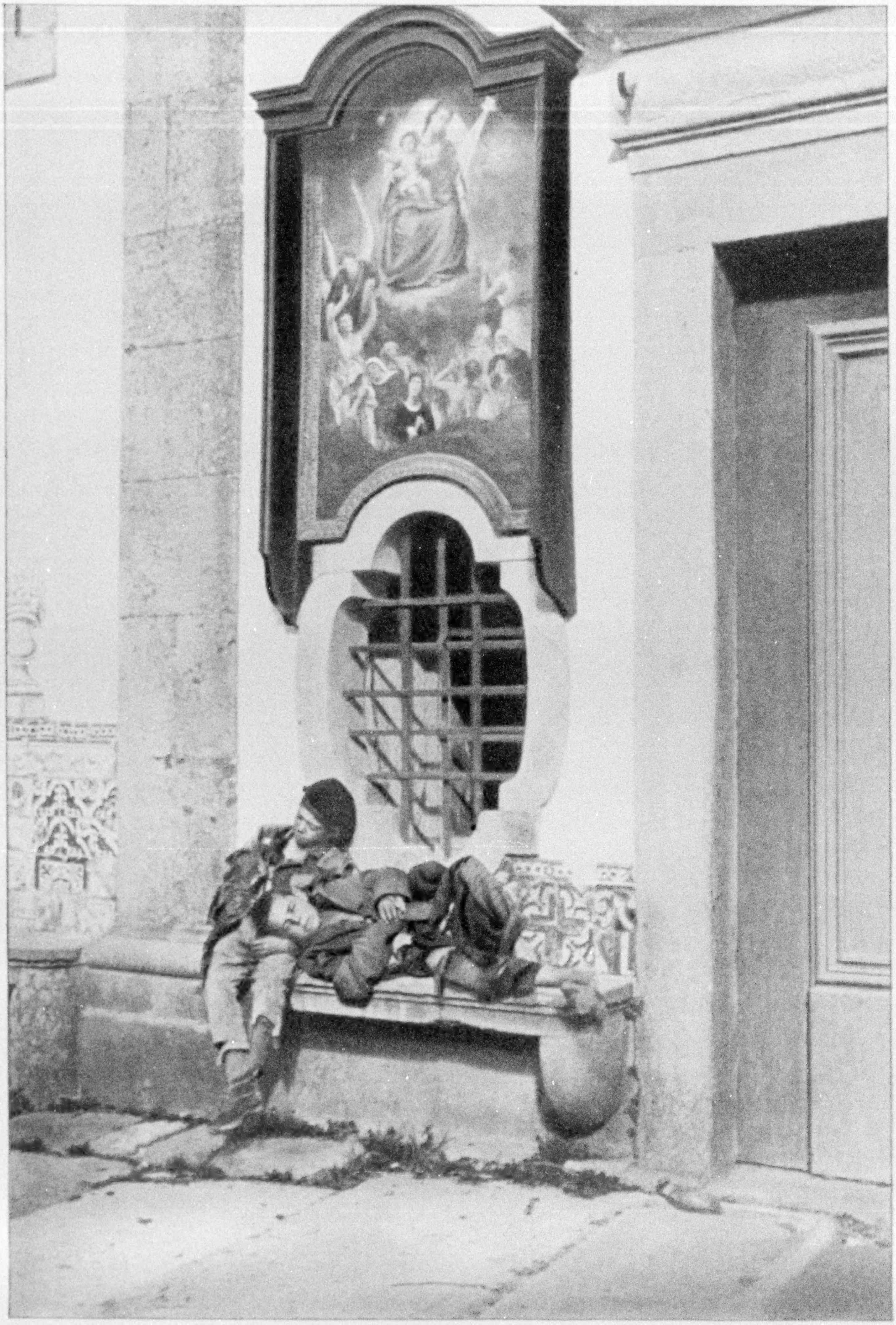
The famous church of Bom Jesus do Monte, which commands the top of a terraced mountain, is visited annually at Whitsuntide by thousands of pilgrims. On each of the terraces there is a fountain shrine.



© Photograph by A. W. Cutler

"HOMEWARD SHE DRIVES BEFORE THE FAVORING GALE"

A large share of Portugal's exports and imports passes through the busy harbor of Oporto, and the Douro River is usually dotted with native boats. The twin-sail distinguishes the cargo-boat from the wine craft with its single square of canvas.



Photograph by A. W. Cutler

THRIVING IN PORTUGAL'S GENIAL SUNSHINE

Poverty has no gloom for these ragged, homeless gamins who doze in the sheltered doorways of the churches and glean their food in the market place. Actual want among them is rare, and they are care-free and happy.

Photograph by A. W. Cutler

WOMEN OF AFFIFE IN THEIR SUNDAY BEST

The overskirt and the headdress belong to the original picturesque costume of the northern part of Portugal, but the quaint, ornamented little waistcoat is missing, indicative of the fact that the fascinating native dress is dying out.

XUM

© Photograph by A. W. Cutler

PASSING THE TIME OF DAY IN LEIRIA

The woman on the right has tucked her raincoat over her arm and is plaiting some straw as she goes along the street. Before consenting to be photographed, she dispensed with her workbag by putting it on her head.

Photograph by A. W. Cutler

©

A PORTUGUESE PEASANT'S PRIZED POSSESSIONS WEARING THE FAMILY HEIRLOOM

A team of fine oxen is a small fortune to the farmer of Portugal. The curiously carved yokes of this country date back to the Moorish occupation. They are never sold, but are handed down in the family as heirlooms. The one shown in this picture antedates the American Revolution by a quarter of a century.

Photograph by A. W. Cutler

A SHEPHERD AND SHEPHERDESS OF CENTRAL PORTUGAL

The girl carries a branch laden with oranges and a kerchief full of freshly picked fruit. He wears sheepskin "chaps" over his trousers.

Photograph by A. W. Cutler

AFTER A DAY IN THE MARKET AT LEIRIA

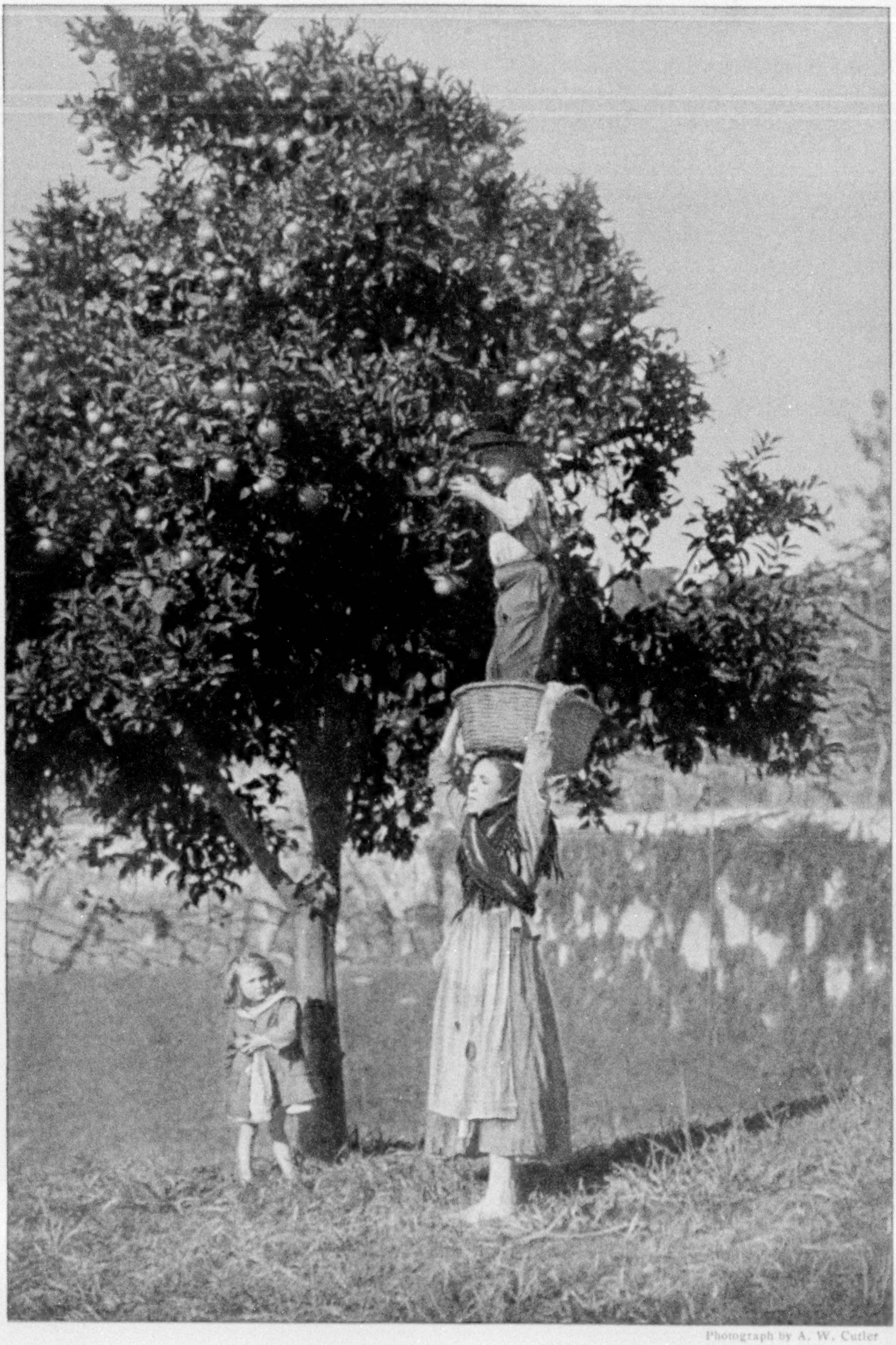
These peasant women have paused beneath the old convent which overlooks the village of Leiria, once the capital of Portugal and the home of the first Portuguese printing press.

XUM

Photograph from Ruth Kedzie Woods

BELLES OF MINHO

The loveliness of the women in the province of Minho is a theme for a poet. The grace and witchery of their persons, the unsurpassed coloring and weaving of their costumes, and the splendor of their heavy golden ornaments are celebrated throughout Portugal.

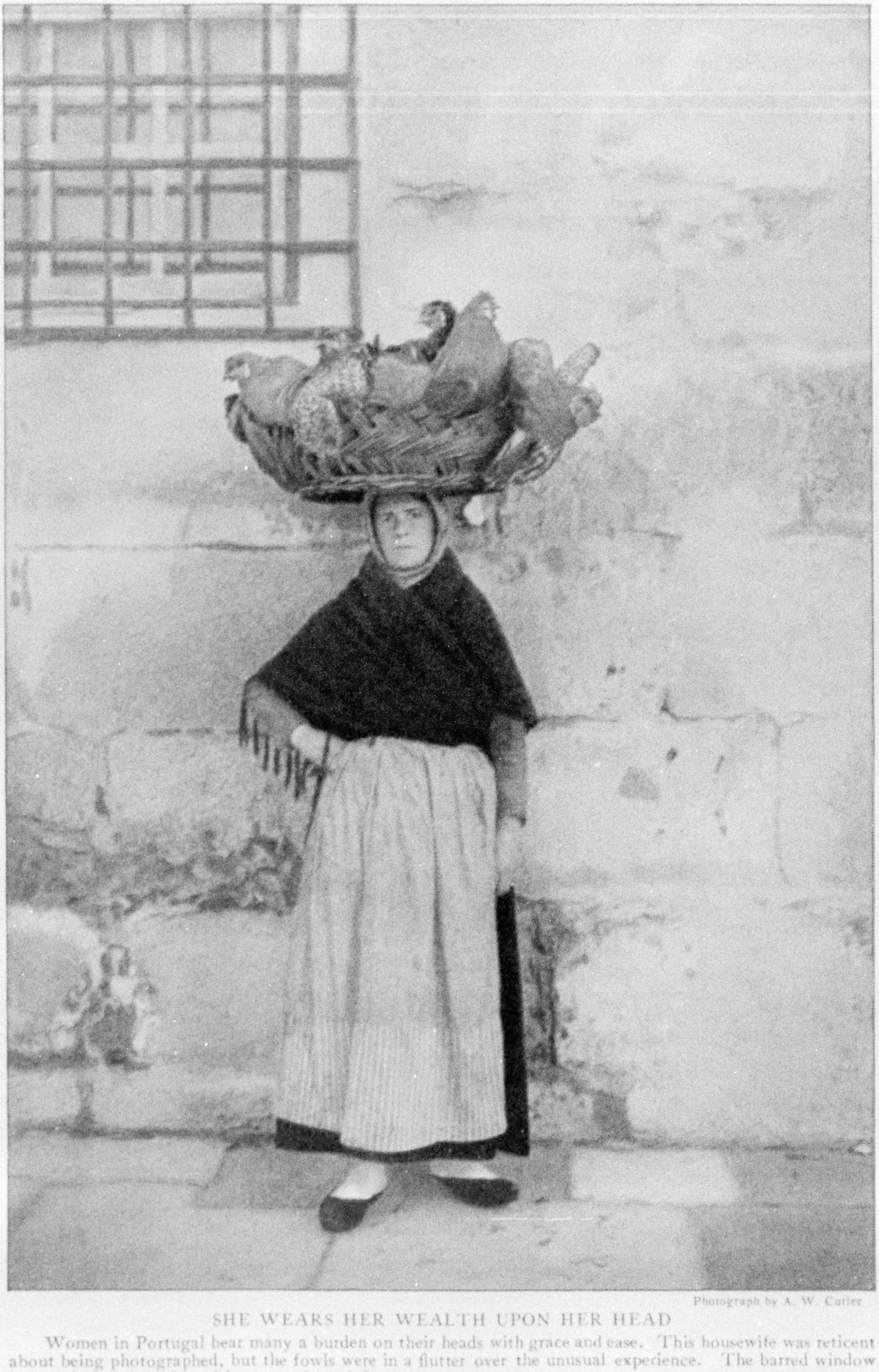


Photograph by A. W. Cutler

MOTHER NECESSITY INVENTS A STEPLADDER

This youth, with the aid of his sister, is filling his basket with oranges, for which he finds a ready market among the pilgrims and foreign visitors to their renowned shrine on the top of Bom Jesus do Monte, in the city of Braga.

XUM



Photograph by A. W. Cutler

SHE WEARS HER WEALTH UPON HER HEAD

Women in Portugal bear many a burden on their heads with grace and ease. This housewife was reticent about being photographed, but the fowls were in a flutter over the unusual experience. The barred window is a reminder of the Moorish occupation of the country.

influence of alien hybridization in a land under colonization by strange peoples. At the same time it shows the adaptability of a race which has itself extended its influence to remote places "in the sun."

CONQUERING RACES MADE SMALL IMPRESS ON THE INTERIOR

The prolonged visits of the Phœnicians, Visigoths, Romans, Moors, and Spanish had little effect or influence on the stock of the Celtic-Iberian folk in the interior and mountainous districts of Portugal, while along the coasts the cities absorbed all those strangers into its urban life. The conquerors fell victims to racial absorption.

Consequently in Lisbon, often invaded and brought under alien rule, are found types which distinctly betray their origin from one or another of the shifting dominant races. Pure Celts from the hills are met on the streets, their pugnacious visages markedly Bretonesque, their costumes like all Celtic raiment, and their side whiskers just as bristly. Traces of imported Negro slave blood are distinguishable, as also are Jewish types, descendants of the refugees from Spain.

One marvels at the strength of limb and neck of the basket-peddler girls, whose profiles, complexions, hair, and stature find a parallel in the descriptions of the Phœnician women of old. Some of these young women are beauties, and they carry rush-woven baskets of fruit, fish, or vegetables poised on their heads with a certain grace which lifts their occupation above drudgery, while, except in the case of the aged, they cry their wares in full-throated melody (see Color Plate XVI).

Striking Moorish types are also often seen, dark-skinned, with the black-bronze hair, large, brilliant black eyes, and pearly teeth of their ancestors. They lack, of course, the thick lips and flat noses of the African types from more tropical regions than the Mediterranean coast.

But by far the greater number of people on the streets are "Portuguese," a race in which is combined something from each of a long list of descendants of successive invaders. They are clean-limbed, regular-featured, medium-sized people of fine appearance. Their type is somewhat akin to the Greek, but they are more swarthy and also more urbane, even-tempered, and cordial.

Portuguese of the upper classes are among the most cultured and gracious people of the world. Hospitality is a characteristic, generosity also, and the arts, sciences, and ethics of civilization are appreciated and employed. Portuguese men engaged in business and commerce are cosmopolitan in the range of their operations and in the compass of their influence.

All the linguistic inheritances and racial divergences of the Portuguese have a direct influence on the life, architecture, and economics of the city. The most ancient of customs and the most antique of implements are found side by side with electric cars, automobiles, modern banking houses, luxuriously furnished homes, and ultra styles.

Yet so perfectly natural and unaffected are the people that nothing seems strange or out of place. The city is a mosaic of civilization; harsh and glaring antagonisms have melted into the picture.

EARTHQUAKE OF 1755 MARKED BEGINNING OF MODERN LISBON

Following the great earthquake of 1755 and the rise of Pombal, modernity took root in Portugal. Pombal had been Minister to England and to Austria and Minister of Foreign Affairs; his contact with progressive nations, particularly with two of the leading courts of the time, bore fruit along practical lines.

Every square foot of Lisbon, excepting the Alfama district, the old town which survived the earthquake, gives evidence of a master mind in careful planning which took advantage of every contour of the site and also had due regard for the monumental requirements of a capital city.

From the Triumphal Arch of the Praça to the Rocio, or Praça de Dom Pedro Quarto, one traverses that part of the new city, the Cidade Baixa, planned to be the location for genteel shops and high-grade mercantile houses. Eight parallel streets running north and south, crossed by eight others running east and west, make a checkerboard district accessible from all sides, and in the mind of Pombal, who gave the streets names suggestive of the trades and industries to be housed

U. S. Navy Official Photograph

BEACH PATROL OF AMERICAN SAILORS IN FRONT OF THE STATUE OF KING JOSÉ

The equestrian statue gives to this famous square the name of "Black Horse Square." The triumphal arch in the background leads from the Praça do Commercio to the Cidade Baixa. These sailors were on patrol in Lisbon when the world-renowned NC-4 reached that city after her flight across the Atlantic.

thereon, this would be the shopping section de luxe of Lisbon.

POMBAL'S SCHEME MODIFIED IN RECENT YEARS

Until about 1890 Pombal's plan was adhered to, but since that date the adoption and extension of electric car lines has made other parts of the growing city regional trading centers, and fine shops are scattered here and there along the avenues and in less congested sections.

The best examples of Pombaline construction designed to resist earthquake shocks lie in this section of the Cidade. The business buildings which house the banks, jewelry stores, trading shops of all kinds, and offices are built of light materials, with walls covered with ceramic tile. Base stories are frequently constructed of stone, but one sees four- and six-story buildings lighter than the average two-story loft building in America.

The tile covering is generally in small sections, six to eight inches square, and highly colored in most instances—blues, greens, yellows, and browns.

The use of tile wall space is a universal complaint with Portuguese architects, but it is a matter of law in Lisbon—light

Photograph by A. W. Cutler

LISBON HAS MANY BEAUTIFUL STATUES TO ITS WORTHY DEAD

A circular plot of ground, attractively decorated with flowers and shaded by palm trees, commemorates the achievements of Eça de Quiroz, a writer of note.

materials above the first story must be used.

There are compensations, however; little monotony is noticeable, colors are used with skill, and tile makes for cleanliness and fire retardation. One house in the Alcântara district is of elaborate design. At first, seen from a distance, it suggests Italian sgraffito plaster-work, but closer examination reveals glazed tile with patterns worked into arabesques and panels presenting intricate scrolls and figures of Grecian maidens and court ladies of later periods, the whole a highly colored composition.

GREAT ELEVATORS ARE A PART OF THE CITY'S RAPID TRANSIT SYSTEM

How to gain the heights on either side of the Cidade is a matter of some concern to strangers. One may, of course, walk, but to the casual visitor this is a back-breaking method. Other schemes include more intriguing methods. Cog-wheel electric cars ply up and down the inclined portions of the hillsides, but

U. S. Navy Official Photograph

THE ROCÍO, OR PRAÇA DE DOM PEDRO QUARTO, BETTER KNOWN AS "ROLLING-MOTION SQUARE"

The remarkable mosaic pavement gives the pedestrian a feeling of undulation. Surmounting the column in the center is a bronze statue of Dom Pedro, Emperor of Brazil and King of Portugal, while at the far end of the praça is the theater of Dona Maria II, occupying the site of the medieval prison and trial court. At the right, above the roofs of the buildings bounding the east side of the praça, is seen the sculptured gable of the Church of São Domingos, the largest in Lisbon.

Photograph by A. W. Cutler

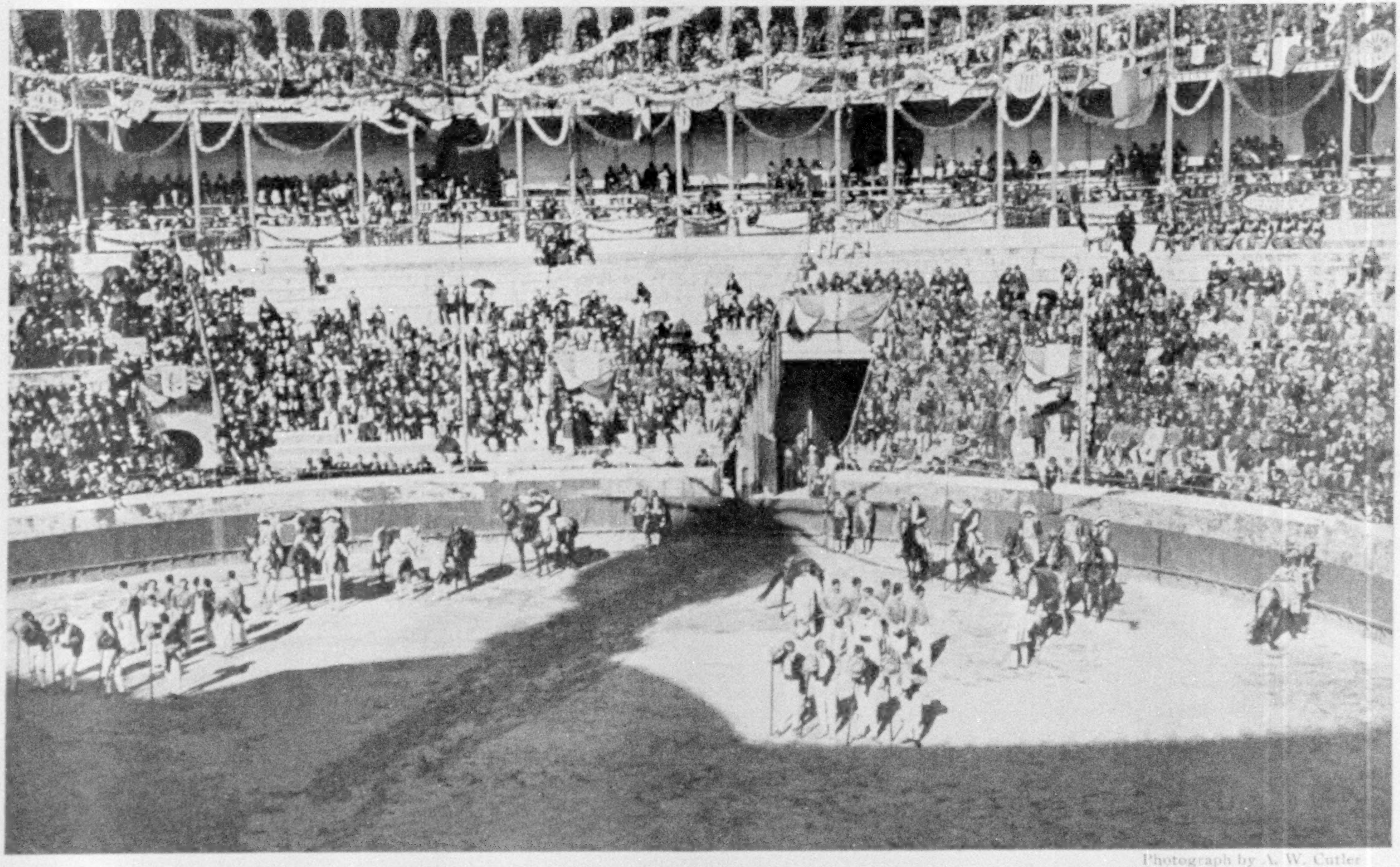
AMERICAN AND BRITISH SAILORS IN PROCESSION ON PORTUGAL'S UNKNOWN WARRIOR DAY

Like her sister allies in the World War, Portugal has paid her homage to an Unknown Soldier. The scene is the Rocio (see also illustration on opposite page).

Photograph by A. W. Cutler

THE AVENIDA DA LIBERDADE, THE FINEST THOROUGHFARE OF PORTUGAL'S CAPITAL

The broad street is lined with palms and red-flowering Judas trees. The central monument was erected by public subscription in 1882, and commemorates the revolution of December 1, 1640, when Portugal was freed from Spanish rule (see text, page 545).



Photograph by A. W. Cutler

OPENING CEREMONIES AT A GALA BULL-FIGHT AT CAMPO PEQUENO, LISBON'S FINEST BULL-RING

The men in front are banderilleros. It is their business to place darts (banderillas) in the neck of the bull when he charges. The men behind are known as campanos. They do a lot of rough-and-tumble work, and an exciting feature of a Portuguese bull-fight is to let in a fresh bull on a group of these campanos, who must rely on each other to attract the attention of the animal when one of their number is chased. Finally the bull is seized by the horns and eventually overpowered. The horsemen wearing hats are heralds; after saluting at the President's box they disappear and do not return. The other men on horseback, with the immensely long sticks, are also campanos (see also Color Plate V).

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TYPICAL OF LISBON

Typical of its stores, its newer business buildings, designed to resist earthquakes, and its methods of transportation. It is not difficult to believe that Lisbon is a clean city when this photograph is studied.

where the banks are sheer and perpendicular huge elevators (*ascensores*) have been installed (see illustration, page 514).

To go from the shopping district of the Cidade direct to the upper elevations of the Alcántara district to the west, one need only board the ascensore in the Rua da Santa Justa and take a hop up to the iron bridge leading to the Largo do Carmo.

This giant lift is not a thing of beauty, but it is useful in the extreme. The bridge from the ascensore to the Largo is high above the Chiado, Lisbon's Fifth Avenue, but an intermediate stage permits one to alight on a level with that street of high-priced shops and restaurants.

By this lift method one may visit three or four levels in as many minutes, but if attempting to climb by the ordinary routes, via winding streets or immense flights of stone steps, one needs time—and wind.

One may run the risk of being arrested for cruelty to animals by engaging a hack and endeavoring to reach the top of a neighboring district sitting behind a struggling little beast, more pony than horse, whose desperate efforts to make altitude are patent to all the besabered policemen along the line of march. Of course, one may assist the driver to swear or moan, as the case may be, in momentary expectation of seeing the poor horse settle down on his beam ends and slide to the foot of the hill, there to be carted off to the town pound, while driver and passenger fall into the hands of the authorities.

Taxicabs are much in demand for getting about the mountainous streets of Lisbon. All the American "brands" of automobiles are to be found at the stands.

The eight streets running north and south in the Cidade pour into the Rocio and the Praça da Figueira. The Rocio is a beautiful square, remarkable for its

Photograph by A. W. Cutler

A VENDER OF KEROSENE ON HIS MORNING ROUND IN LISBON

pavement, laid in a mosaic pattern which produces an optical illusion responsible for its popular nickname, "Rolling-Motion Square" (see pages 536-537).

A THEATER GRACES THE MEDIEVAL PRISON SITE

A large column in the center of the Rocío supports a bronze statue of Dom Pedro IV, one-time Emperor of Brazil and King of Portugal. Two bronze fountains, equidistant from the column at either end of the square, preserve its symmetry and afford bathtubs for all the pigeons in Estremadura Province.

At the north end of the square is the imposing theater of Dona Maria II, remarkable successor of the trial court and medieval prison—a place of horrors which has become a place of enjoyment. The other sides of the square are bounded by streets with mercantile establishments. Double rows of vigorous trees on the east and west sides add the shade so necessary to the public enjoyment of parks and plazas.

From the northwest corner of the Rocío one enters the Largo de Camões, a small square, on the west side of which is the Central Railway Station and the Avenida Palace Hotel, two important buildings from the traveler's standpoint. The Largo is really a connecting plaza between the Rocío and the Avenida da Liberdade, the Champs Elysées of Lisbon. With the Rocío and the Avenida begins the formal and semi-official section of the Cidade Baixa.

Only students of Portuguese history may understand the real significance of the names of streets, avenues, parks, and buildings in this section of the city. Its beauty is another matter; all may see it who will.

SQUARE AND AVENUE COMMEMORATE GREAT EVENT

Although the "new city," the Baixa is not without its charm. The skill of architects, horticulturists, and silviculturists has been lavished upon it; so also has the artistry of sculptors and gardeners and the ingenuity of municipal engineers. In consequence, the whole district is a delight. Starting at the south end of the Avenida, at the Praça dos Restauradores, a park-like thoroughfare leads straight out to the plateau of Estremadura.

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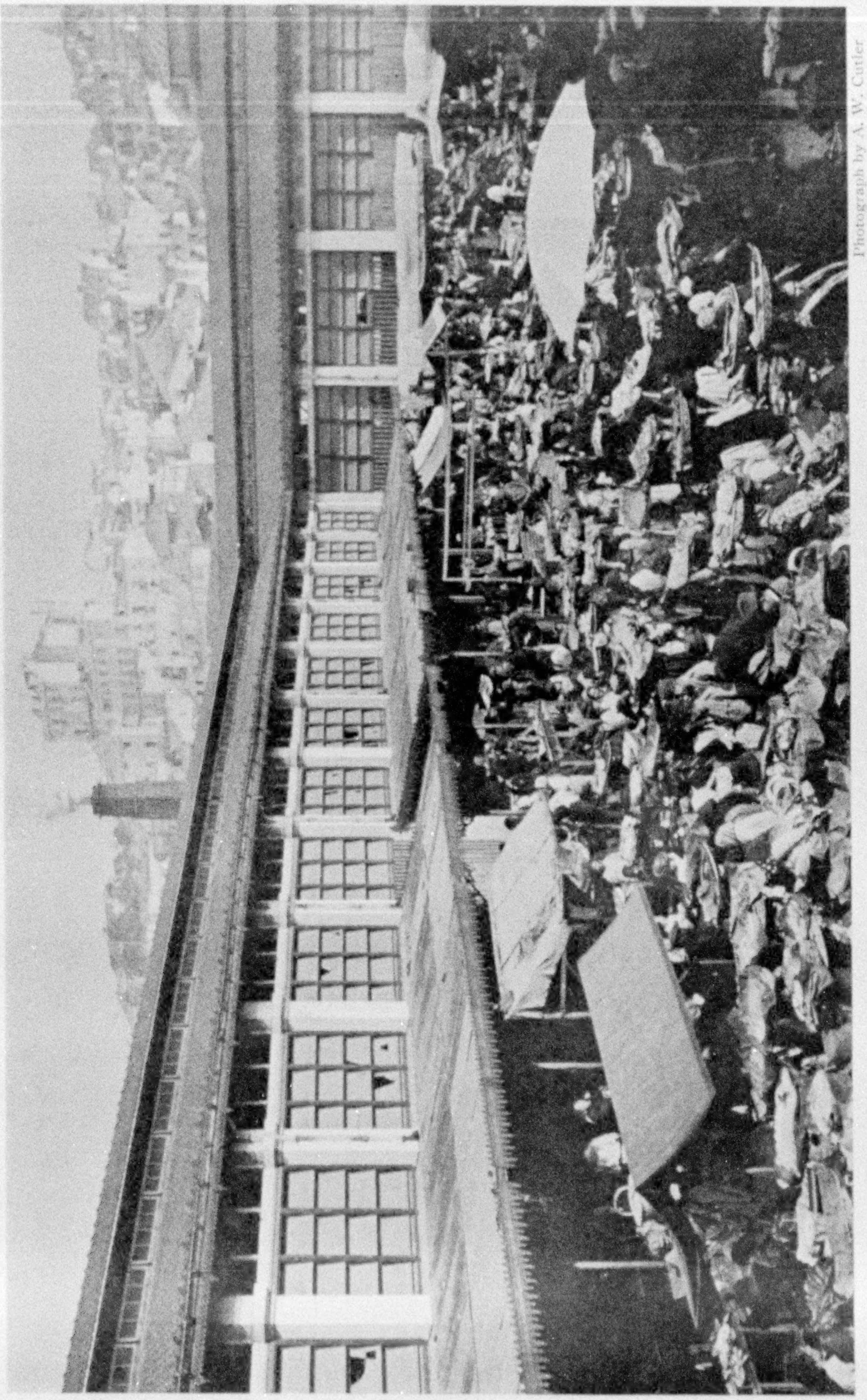
THE BATTLE WITH DIRT IN LISBON

The washboard is a piece of rock and the washing process a test of muscle, cloth, and womanly patience. This laundry scene is one of the most interesting bits of domestic economy in Lisbon; everything is free except the soap and the clothes.



Photograph by A. W. Cutler

THE FISH MARKET OF LISBON

HAULING IN AN EMPTY SARDINE NET ON THE LISBON WATERFRONT

Photographs by A. W. Cutler

THE FISHER GIRLS OF LISBON SQUAT ON THE GROUND WHEN MAKING A SALE

These fisher girls are a distinct class. Their mothers and grandmothers before them sold fish in this way, and the children of these girls and their children's children will do the same.

Praça dos Restauradores, a lovely little square, and Avenida da Liberdade contain in their names the summing up of a great epoch in the national life of the nation — Restauradores and Liberdade — two words meaning the restorers and liberty. The square and the avenue commemorate the heroic struggle against Spain from the 14th to the 17th century, culminating in the Portuguese Day of Independence on December 1, 1640.

The beautiful Obelisk in the Praça, ninety feet high, mounted on a sculptured pedestal and lettered in bronze with the names of the principal battles of the restoration, is a national shrine.

Photograph by A. W. Cutler

A DEAL IN FISH

This scene was recorded before the "victims" became aware of the presence of the camera man, and it is accordingly a true picture of a phase of Portuguese life at the capital.

From this point stretch avenues of trees, myriads of flowering shrubs, subtropical plants, palms, kiosks, bandstands, flower beds, fountains, rockeries, statuary, promenades, grottoes, and every appealing construction and growth to attract, not only human beings, but all manner of birds and insects. The Avenida shrills with the songs of birds and hums with the drone of bees; butterflies flit among its vivid blooms and colored fish sport in its pools and fountains.

Bordering the Avenida are hotels, theaters, cafés, shops, and, as one leaves the vicinity of the Obelisk, residences and clubs. At the north end of the great boulevard is the immense circular Praça Marquez Pombal and, just beyond, the beautiful Parque Eduardo VII, a veritable fairyland of trees, shrubs, flowers, and ponds. Farther out, by way of the Avenida Antonio Augusto de Aguir, one comes to the Zoölogical Gardens, perhaps the finest in southern Europe.

THE NIGHT LIFE OF LISBON

At night the Avenida becomes a kind of out-of-doors theater. Lighted by row upon row of electric standards, it is used as a promenade as freely as at noonday. Band concerts are given nightly and beer gardens are open for business in the vicinity of the musicians.

Delightful are the summer evenings in Lisbon. Aside from the real enjoyment

Photograph by A. W. Cutler

A FISHER GIRL OF FORTY

She refused persistently all offers to permit this picture to be taken until finally her friends in the crowd of onlookers threatened never to speak to her again if she still persisted in declining the substantial sum promised by the photographer. So she succumbed, and this is the result.

of the shifting scene on the Avenida, the very air is charged with mildly invigorating ozone, welcome after the heat of midday. The stars shine brighter than in less clear atmosphere, and twinkling lights from the hillsides contrast pleasingly with the glare of automobile headlights flashing through streets seemingly among the clouds.

Night-life indoors, like night-life in cities the world over, has its devotees in Lisbon. Theaters are numerous and a great opera house, closed in summer, stands near the Chiado. A large number of vaudeville shows prosper, and cinemas are most popular, American motion-picture stars being the prime favorites.

Dance halls and dansant cafés are not numerous. Only a few such institutions of respectability and prominence are to be found in operation during the summer season.

A VISIT TO ALFAMA, A TANGLE OF NARROW STREETS

In direct contrast to the level Baixa, with its wide streets, broad avenues, and beautiful plaza, the Alfama is a rough old hill, furrowed by a network of narrow, winding alleys and would-be streets running in an indescribable tangle.

On the very top of the hill stands the ancient Moorish pile now called the Castle of St. George. Although a barrack and military prison, it is hallowed by centuries of history and is an object of veneration to all Portuguese. One may ride to within a few blocks of the Castle by taking a tram, or "electricos," near the Triumphal Arch of the Praça do Commercio.

The tram passes the Sé or Cathedral of Santa Maria, the oldest church in Lisbon. Said to have been founded miraculously in the year 306, this old building site has been dedicated to pagan gods, has borne a mosque on its foundation stones, and has known several churches and cathedrals. The one now standing is being restored.

I went about this hill and old city by "jitney." It was an experience The buildings are antiques of remote times—churches, shops, dwellings, towers, hospitals, barracks, stables, hovels, and whatnot, cast about in a jumble of plaster, stone, tile, adobe, and cobbles.

Photograph by A. W. Cutler

A SARDINE MERCHANT OF LISBON

She feels more at home with her basket on her head. This little maid was one of the very few subjects who willingly posed for her picture. Her smile reveals the even white teeth for which the Portuguese peasantry are noted.

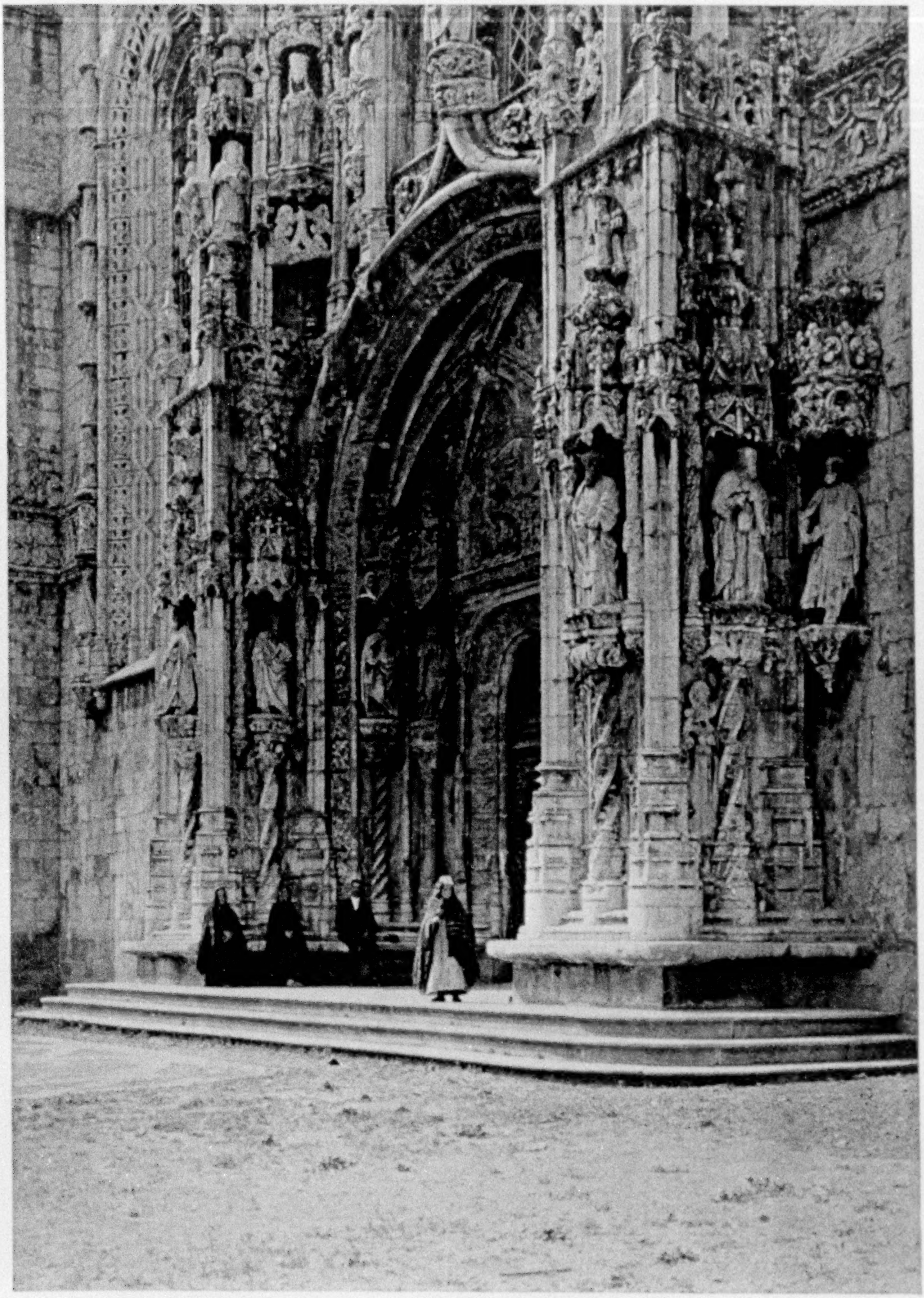
The streets are so narrow that when an "electrico" passes, the dwellers are obliged to stay indoors. Men with red and green bunting are stationed along the tram route, and the traffic is regulated by flag signal.

Steep and crooked, narrow and slippery, with blind turns on every hand, the streets of Alfama are dangerous for automobile traffic. I never have had a more thrilling ride on wheels than that in this section.

Photograph by A. W. Cutler

A DRINKING FOUNTAIN IN THE CLOISTERS OF BELEM CATHEDRAL (JERONYMOS)

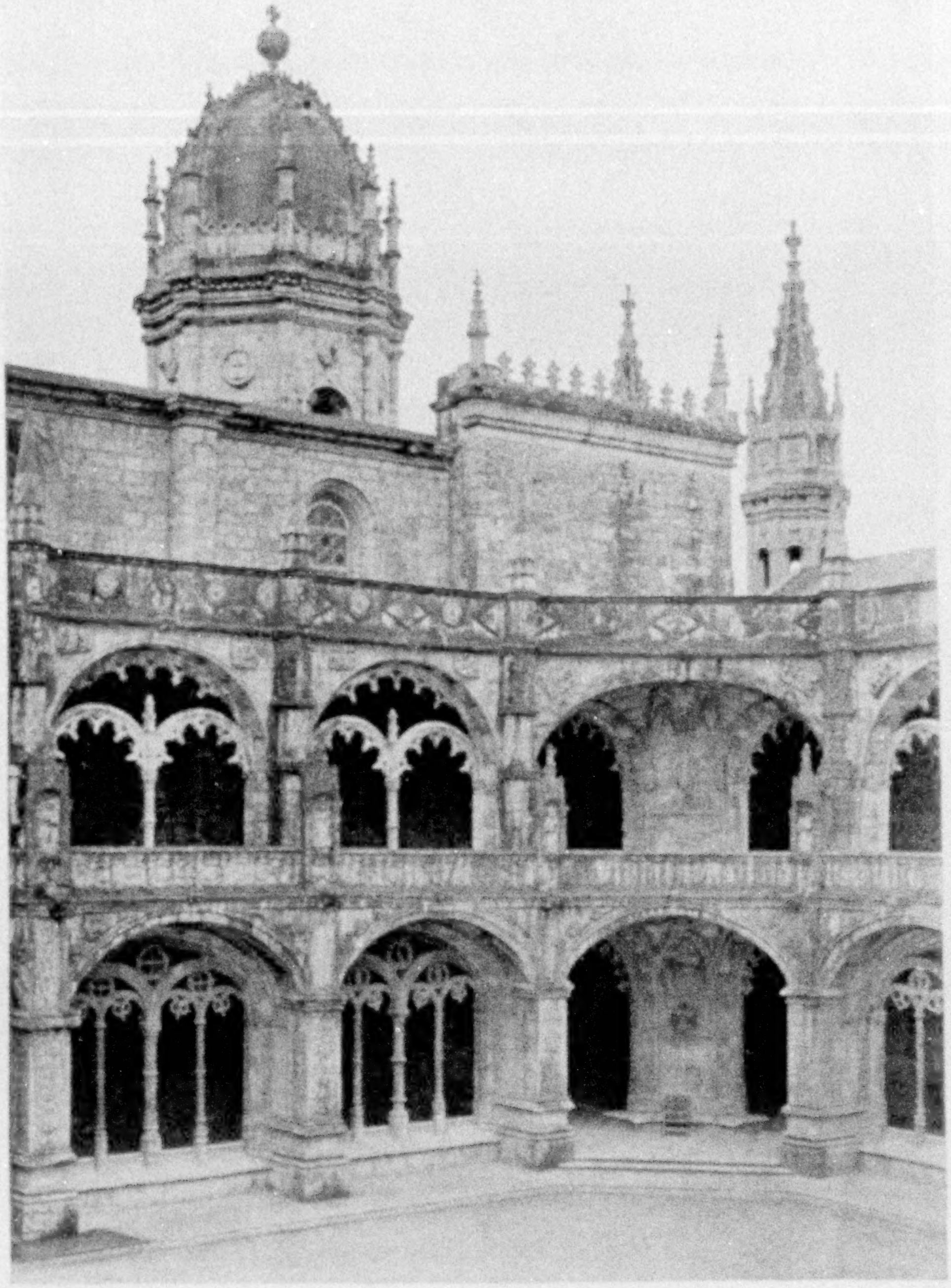
Upon the suppression of the convent of Jeronymos in 1834, the buildings were given to the Casa Pia, an orphanage. At least a hundred boys from this institution were standing just back of the camera and were with difficulty restrained from swarming into the picture (see also illustration on page 504).



Photograph by A. W. Cutler

THE MAIN ENTRANCE TO THE CHURCH OF SANTA MARIA

The edifice was founded in 1500, on the site of the hermitage in which Vasco da Gama and his followers prayed on the eve of their departure for India by way of the Cape of Good Hope. The cathedral contains the tombs of many celebrities, including those of Vasco da Gama and Alexandre Herculano, the famous Portuguese historian (see text, page 551).



Photograph by A. W. Cutler

IN THE CLOISTERS OF THE OLD MONASTERY ADJOINING THE CHURCH OF SANTA MARIA (SEE ALSO PAGES 548-551)

This is said to be the finest example of the style of Portuguese architecture developed at the zenith of the nation's power, during the reign of Emmanuel I, and known as "Manueline." It is largely borrowed from the early Renaissance, from the sumptuous buildings of India, and from the Moors.

bronze grilles everywhere, wrought - iron grilles in between—a section amazing in color, architecture, and human interest. Most of it suffered terribly from the earthquake; but, strange to state, the churches and convents survived in nearly every instance, as did some of the palaces and other buildings. One should visit the Alcántara by all means when in Lisbon, even if time is a factor.

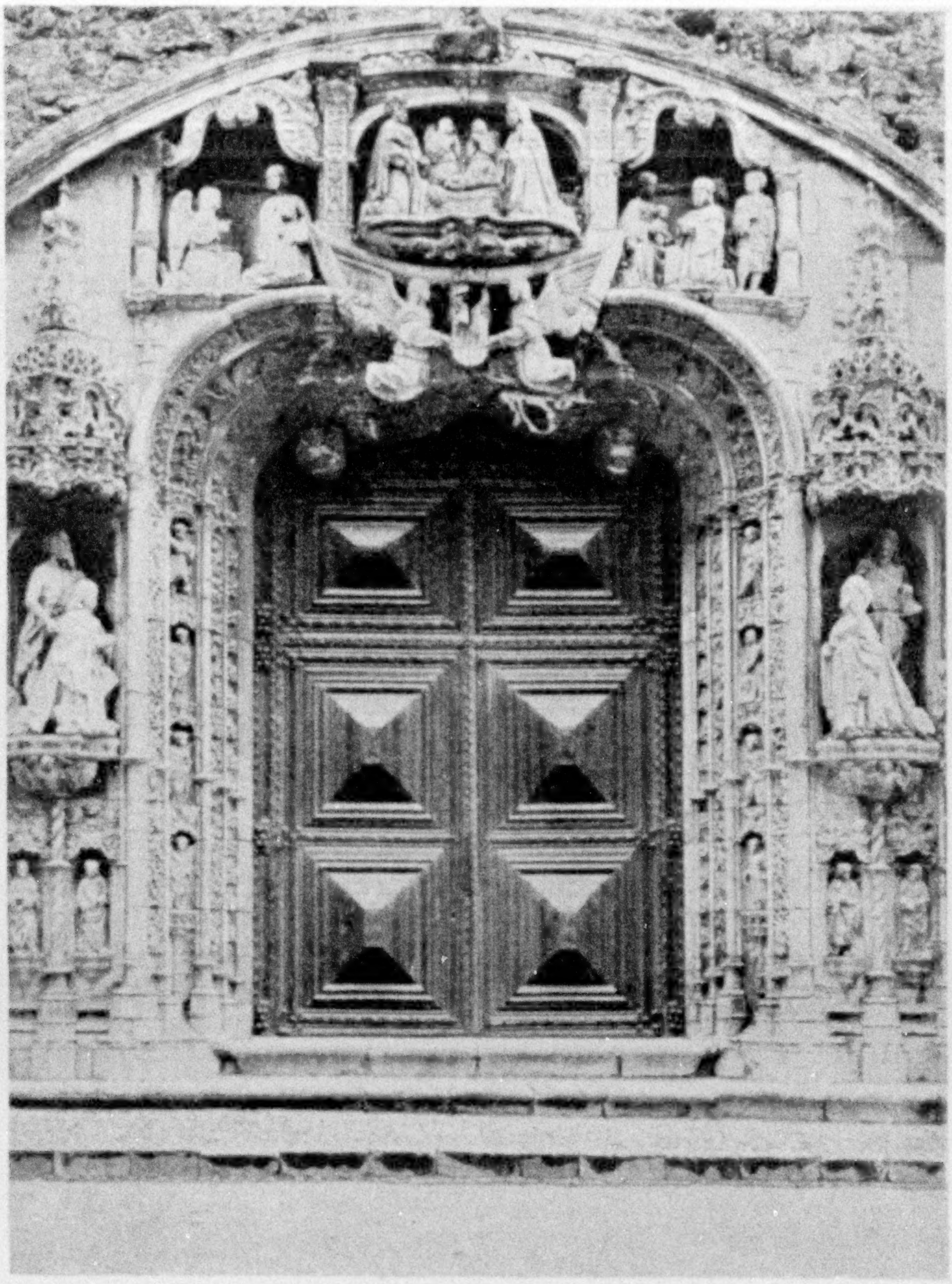
OTHER BEAUTY SPOTS OF LISBON

The beauties of the Misericordia Chapel must not be overlooked; it is splashed with silver inside. Then there is the Botanical Garden, the Horticultural Garden, the beauties of the Estrella and its wonderful garden, the British Cemetery with the tomb of Henry Fielding, the great viaduct which brings water 70 miles across the plains, the Palace of the Necessidades with its park, the Cortes Palace, the Ajuda Palace, and the wonderful religious group at Belem.

By far the most beautiful architectural group in Lisbon is that of the Church and Monastery of Santa Maria, locally known as the Jeronymos. Not the least interesting feature of a visit to Belem, where the Jeronymos is located, is the ride by tram from the Praça do Commercio. One passes en route the fish wharves, the electric power station, numerous barracks, squares, palaces, statuary, museums, docks, and all sorts of waterfront activities.

One could stretch out his arm on either side of the machine and touch the buildings. Here a Roman wall, there a Moorish survival; quaint doorways and ancient grilles, queer slanting roofs and awkward gables—architectural chaos—this section of Lisbon is archeological.

A tramp through the Alcántara district west of the Cidade is like visiting another city. One is forever bumping into churches, parks, cemeteries, convents, palaces, viaducts, barracks, museums, statuary, old houses with delightful balconies.



Photograph by A. W. Cutler

THE ENTRANCE TO THE OLD MONASTERY ADJOINING THE CHURCH OF SANTA MARIA

Occupying the site of a seamen's home, this former convent was founded by Henry the Navigator in fulfillment of a vow to erect a convent to the Virgin if Vasco da Gama's enterprise should prove successful.

The whole locality is historic ground, bound up with the early discoveries and development of America, Asia, and Africa. From this immediate shore sailed Vasco da Gama Bartholomeu Diaz, Affonso d'Albuquerque, and the conquerors of the Orient.

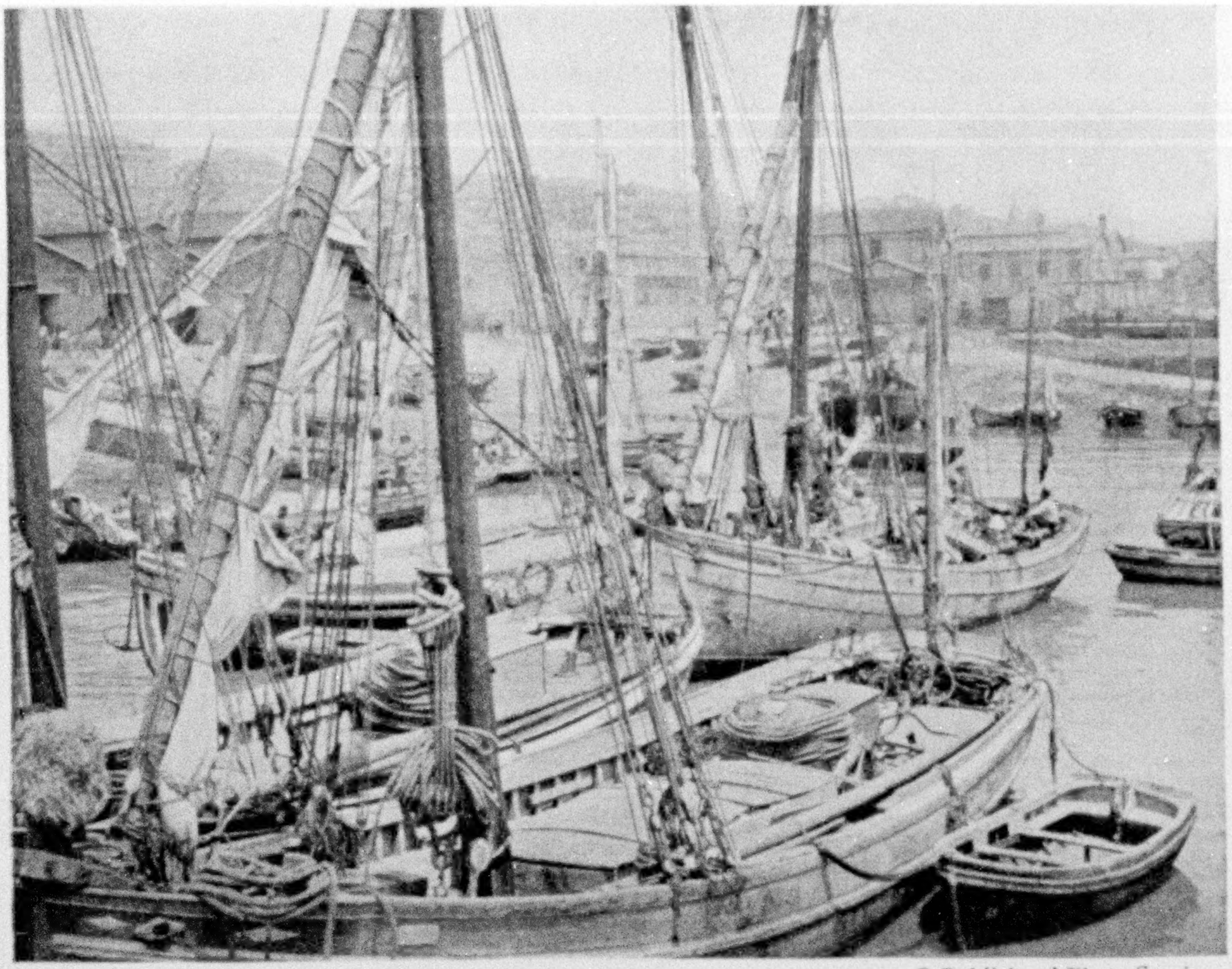
Henry the Navigator had his chapel and laboratory in a little hermitage near this beach. The return of da Gama from India in 1499 was a triumph for the kingdom, and to immortalize the event, Manuel I erected the superb monastery of St. Jerome on the site of Prince Henry's chapel-hermitage. The locality, previously known as Restello, was then renamed Belem or Bethlehem.

The first stone was laid by the king in the year 1500. From the quarries of Estremadura came the white stone which, after four centuries, even in its most delicate carvings shows no sign of wear or weathering. Built on cedar piling, the edifice has withstood the shock of earthquakes during all these years.

THE ARCHITECTURAL GEM OF PORTUGAL

The south door of the church is a remarkable example of rich carving in the Manueline style. It is not only ornamental from an architectural viewpoint, but it is a chapter from the history of Portugal carved in stone. The door is divided by a column supporting the effigy of Vasco da Gama. At the right and left are the twelve Apostles, and above the door is the Virgin with twelve saints, while above all and watching over them is the archangel Michael. All these figures are most delicately carved (see page 549).

Inside, the richly carved stone columns splay out into lacy fan vaulting, and several elaborate altars inlaid with silver and gold from Brazil and India give distinction to the plain choir and crossing. An organ of peculiar richness, with its pipes enclosed in wood carving of superb



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LOOKING BACK AT THE TEEMING WATERFRONT OF THE FINEST OLD CITY OF THE IBERIAN PENINSULA

In the foreground is a leg-o'-mutton, yawl-rigged bay fisherman with its miniature longboat tied bow and stern alongside; beyond it may be seen the long, curving spar of a lateen-rigged craft.

design and delicate beauty, is located in a gallery in the west end of the nave.

Buried within this gem-like cathedral are some of the nation's most celebrated dead. In the transept lie Vasco da Gama; Camoens, the great epic poet of Portugal, and Almeida Garrett, 19th-century poet, and in the baptistery rests Joao de Deus, Portugal's greatest teacher.

By a door in the west porch one enters the cloister. This two-story mass of carving has no counterpart in Portugal. Its glory is well-nigh incomparable. Fantastic designs are endless and without duplication in the completed whole, rope mouldings interlace with vines and cusps, a series of pierced quatrefoils adds to the laciness of the arched supports of the balcony story, and vistas of surpassing beauty are seen on every hand (see illustrations, pages 548 and 550).

I sailed down the Tagus at daybreak. Just as the sun came up and bathed the city in a flood of brilliancy, our ship turned down the channel toward the open bay and the ocean. I looked back at the finest old city of the Peninsula, and I kept looking until the ship swung around Cape Raso and sped for the Bay of Biscay, shutting from view behind the mountains that glory-spot of Portugal, and with it the waters of the Friendly Bay.

A SKETCH OF THE GEOGRAPHICAL HISTORY OF ASIA MINOR

By Sir William Ramsay, D. C. L., LL. D.

A glance at the pages of the past will aid the readers of The Geographic *in grasping the significance of the recent upheaval in Asia Minor, especially in the vicinity of Smyrna and along the shores of the Sea of Marmora. The author of the following article is one of the foremost authorities on the geography and the history of the Near East, his knowledge having been gained during a residence of more than 30 years in this part of the world.*—The Editor.

THE great peninsula of Asia Minor protrudes toward the west from the main mass of the continent of Asia and reaches out toward Europe, from which it is divided by the Ægean Sea and by the salt-water river called the Bosporus and the Dardanelles. Until a comparatively recent geologic age, it actually reached Europe, and the Ægean Sea did not exist.

The name Asia Minor is a medieval invention; the ancients used no single name for this large peninsula, which they never regarded as a unity, but only as a congeries of distinct countries—Lydia, Phrygia, Mysia, Cappadocia, Lycaonia, etc. The Turkish name Anadol, Anatolia, is not exactly coextensive, but is a useful variation.

The length from east to west is from 500 to 700 miles, according to the eastern limit chosen by individual inclination. Some extend the name as far as the Euphrates or even beyond; others make the eastern boundary run north from the line of Mt. Amanus (Turkish, Alma-Dagh), which bounds Cilicia on the east. Its breadth north to south varies from 300 to 400 miles (see map, page 554).

THE PENINSULA IS SHAPED LIKE A HAND

In shape the peninsula of Asia Minor may be compared by a rough analogy to the right hand laid palm upward, with the fingers pointing to the west. The palm is the central plateau, which is surrounded with a rim of mountains. Like fingers, five chains of mountains extend from the plateau, most of them stretching far out into the Ægean Sea, as if they were trying to force their way to Europe.

These mountain chains are continued by chains of islands, which form, as it were, stepping-stones for the march of a giant from Asia to Europe. Mt. Ida, which is the western end of the "thumb," is continued by Tenedos, Imbros, and Samothrace. The first mountain-finger, though comparatively insignificant on land, is resumed by the islands of Lesbos, Lemnos, etc. The second finger, Tmolus, is continued by the islands of Chios, Ipsara, Skyros, etc.; and the third, Messogis, by the islands of Samos, Icaria, Tenos, Andros, while the great ridge of Taurus is continued across the sea by the larger islands of Rhodes and Crete.

Each of these chains turns northward and is continued on the European side of the Ægean Sea.

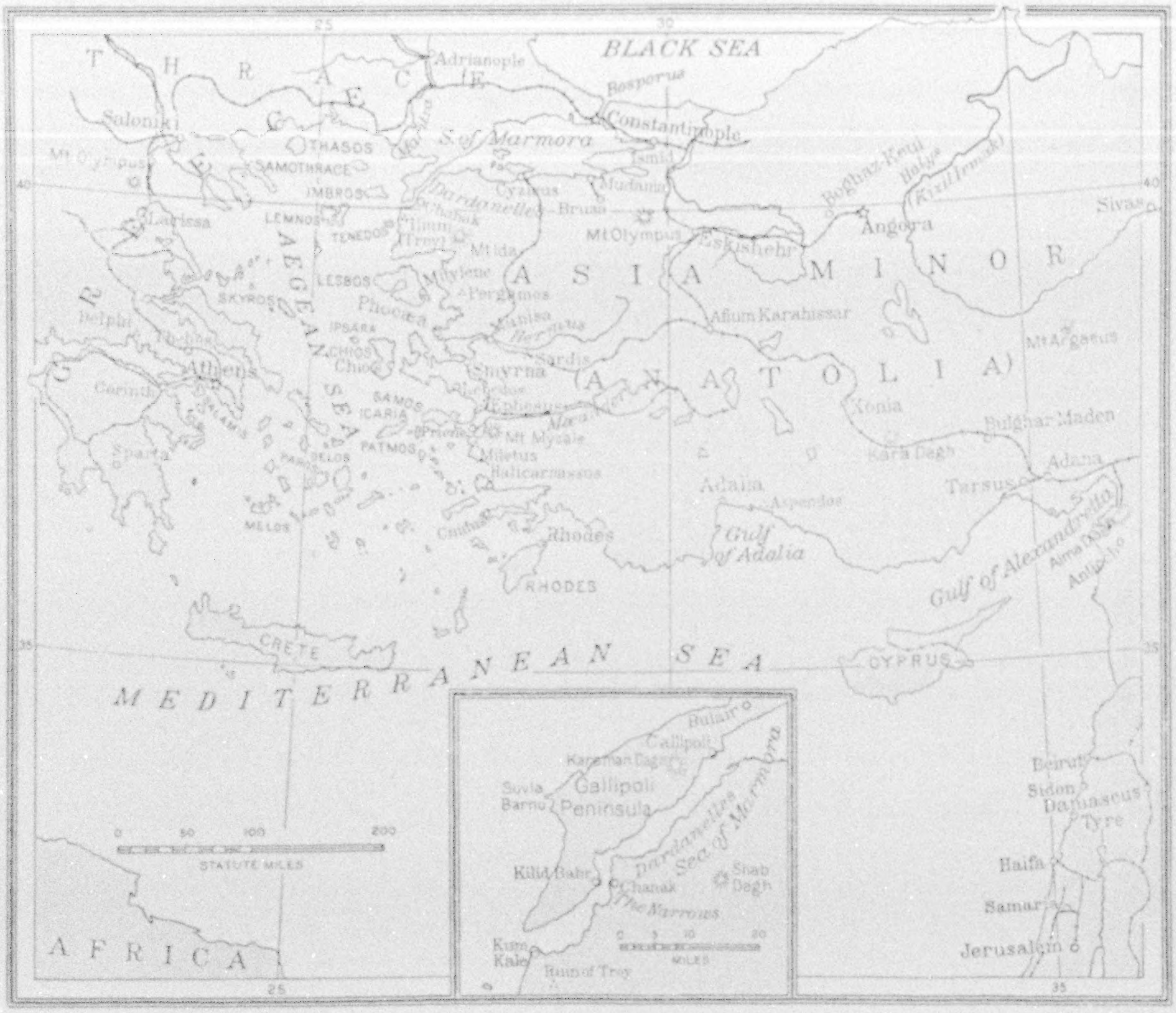
PHYSICAL GEOGRAPHY MADE ASIA MINOR'S PEOPLE SEAFARERS

Accordingly, in Asia Minor, Europe and Asia meet both geographically and historically. But the main mass of the peninsula is Asiatic in character—a continuation of central Asia—monotonous, level, unchanging, but molding man to its own character and imposing a general similarity of type on every race, Asiatic or European, that has settled there.

The west coast, however, is as broken and irregular as European Greece or Scotland. Long arms of the Ægean Sea stretch up into the land, alternating with those long mountain fingers which project far out into the sea.

Very frequently the sea presents by far the shortest way from one point to another on the land; and during a great part of the year it is so quiet, or moved only by winds so regular and certain, that it tempts men to navigation and has tempted them from the beginning of history.

You may stand on a promontory of western Asia Minor and signal by hand across the sea-arm; in fact, in the clear



Drawn by A. H. Bumstead

A MAP OF ASIA MINOR, THE DARDANELLES, AND THE ISLANDS OF THE ÆGEAN SEA

For a more detailed map of this region, see the National Geographic Society's New Map of Europe, issued as a supplement with the NATIONAL GEOGRAPHIC MAGAZINE for February, 1921.

atmosphere you would almost think that the voice could carry over the gulf, as the distance is diminished by the deceptive clearness of the atmosphere; but in order to reach the other side you may have to make a journey of 20 to 60 miles, often very difficult over mountain paths.

Navigation is here forced upon men, or Nature, as it were, tempts men and urges them to cross the easy path of the sea. The people of those Ægean lands drank in the spirit of adventure, and so gradually founded the great series of colonies with which they ringed round almost the entire circuit of the Mediterranean (except where the Phœnicians had established themselves too strongly, from Tripoli through Carthage to the Atlantic Ocean).

That the seaway is the best way is marked even in language, since the word *pontos*, the sea, is commonly explained as a nasalized byform of *patos*, path.

The conditions of life in those sea lands are not too easy. Life is very enjoyable in the clear air and bright sun, but life means work, enterprise, and sometimes danger. A hard-working, self-confident spirit is developed among the inhabitants.

Food is scanty; the land is naturally, in great part, either barren and rocky or in need of great care, foresight, and engineering skill in order to tame it to man's use. Everything encourages the spirit of freedom, boldness and seamanship.

IN LEGENDS THE GODS OF THIS LAND DIED YOUNG

On the other hand, the mass of the Anatolian Peninsula consists of great, gently undulating plains. At the lofty

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CHILDREN OF SMYRNA: A PHOTOGRAPH TAKEN SHORTLY BEFORE THE RECENT HOLOCAUST

elevation of the plateau the winters are long and severe; the summer is hot, but not long. The soil is in large part fertile, but agriculture is dependent entirely on the chances of an uncertain rainfall. The god who gives the "rains and fruitful seasons" to men becomes, in their estimation, a power whose enormous strength emphasizes the insignificance of man and his dependence on nature.

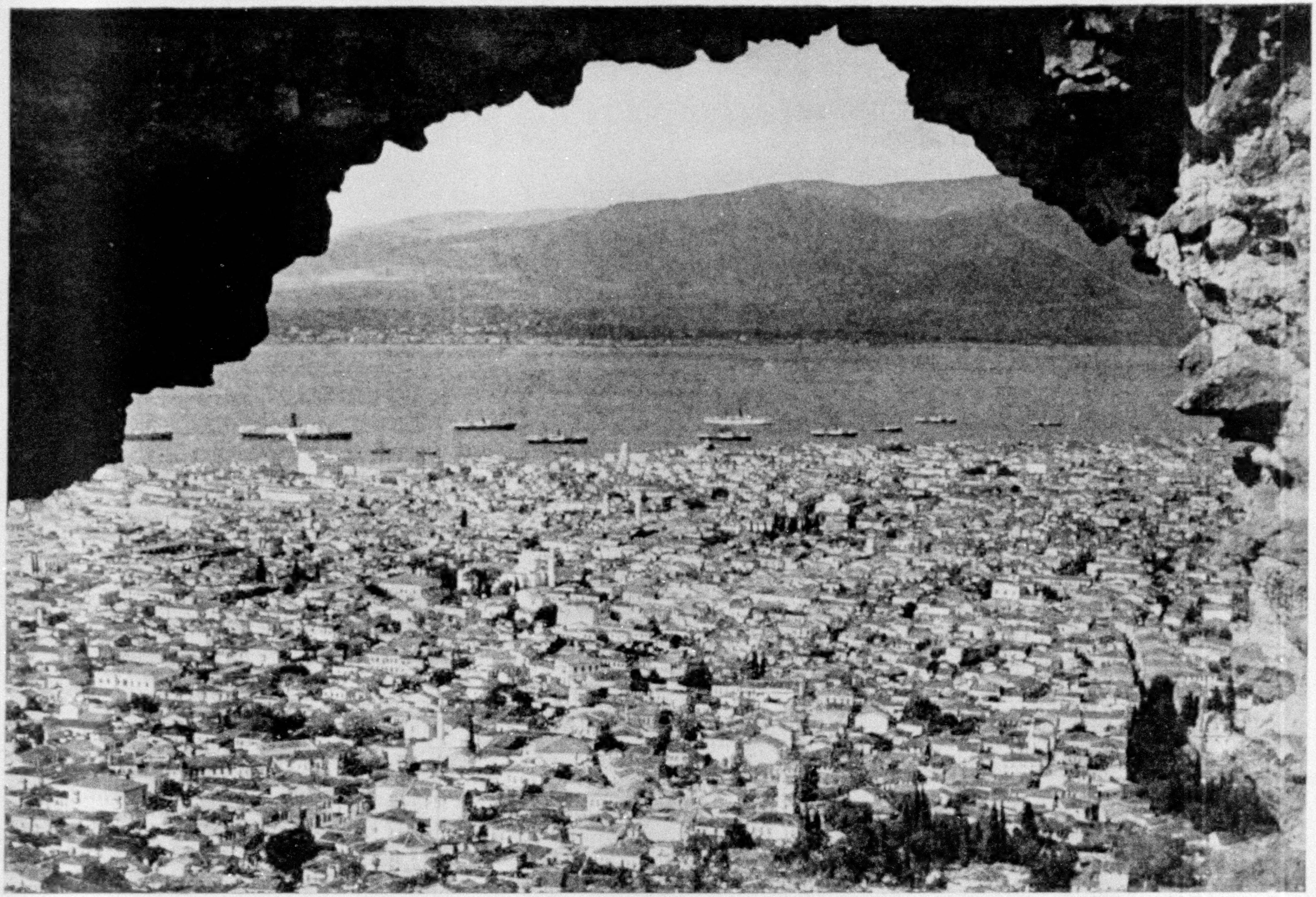
There is a certain melancholy in the tone of the landscape which after a time takes an even stronger hold on the mind of man than the bright and varied scenery of the Ægean coast lands. The religion and the religious legends are characterized by the same tone.

To the Anatolian mind the life of nature seems always to end in early death. In the prime of life and the pride of art the hero-god, who symbolizes and embodies the life of nature, is cut off; he is Lityerses, killed by the sickles of the reapers in the field; or Marsyas, hung up and flayed alive by a hostile power; or Hylas, drawn down by the nymphs into the fountain; or he dies in battle, as Achilles.

ONCE ONE OF THE WEALTHIEST PARTS OF MEDITERRANEAN WORLD

In ancient times this great peninsula of Asia Minor was one of the wealthiest parts of the Mediterranean world; and in particular, the western portion of the peninsula, containing the valleys of the Mæander and other streams which flow toward the Ægean Sea, was renowned as the richest part of the Roman Empire.

It was richer even than Egypt in the Roman period, because the wealth of Egypt belonged to the Emperor himself and did not benefit the inhabitants materially, although they were in a position of comfort and ease and peace; but in the western parts of Asia Minor, which the Romans had classified as the two provinces Asia and Bithynia, the wealth of the country remained more in the hands of the inhabitants, who were free citizens, trading for themselves and making their own profit.



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A VIEW OF SMYRNA BEFORE IT WAS STRICKEN WITH FIRE AND SWORD

Looking east from the mountains over the chief city of Asiatic Turkey.

This prosperity, though maintained by the Roman Empire, was not created by it. It existed long before the Romans had even set foot in the eastern parts of the Mediterranean world; in fact, the entrance of the Romans into Asia Minor during the second century B. C. was for a time injurious to its well-being, for the country fell under military administration.

The Roman governors of Asia were, as a rule, infected with that spirit of covetousness and rapacity which was a marked fault of the Roman character. While often possessing excellent abilities, they were, as a rule, cruel and grasping; yet Asia was able to endure and, after a century, to recover from the rapacity of the military administration.

When the Empire was established by Julius Cæsar, about 46 B. C., and consolidated and regulated by Augustus during his long tenure of power, 31 B. C. to 14 A. D., a new system was established, based on just collection and fair incidence of taxation, and on general administration in the interest of the people of the province.

Under the emperors the well-developed system of interchange of produce and the ease and regularity of communication along the seaways and the land-roads of the Roman world tended to produce an extremely high standard of well-being, and even luxury and wealth, in the Mediterranean world as a whole, and particularly in Asia Minor.

The historian Gibbon remarks that there has probably never been any period when there was such a high standard of comfort and happiness in the world generally as during the second century A. D., "the age of the Antonines."

My purpose is to describe very briefly the originating causes of the prosperity of the country; the greatness of the population and the high standard of wealth which was attained through these various causes; the long process of decay; the possibility of recuperation and renewal of the former happy condition.

IRRIGATION IS ESSENTIAL TO ASIA MINOR'S PRODUCTIVITY

Very few parts of the Mediterranean lands have been given to the use of man by the hand of God in a condition of immediate and easy productiveness; much time and labor have to be expended in bringing them into that condition. That is specially true of Asia Minor.

The low grounds are frequently marshy; there is an oversupply of water.

The great level central plateau is arid; for, although abundant rain falls, it must be stored.

The sloping grounds and hillsides are liable to be swept clear of soil at certain seasons by too abundant rains, which run down and stagnate in the marshes of the low lands. It is necessary, therefore, to conserve and distribute the water-supply.

On the hillsides an elaborate system of terracing is required to retain the rain or the melting snows, and so prevent devastating floods. In the low ground the marshes must be drained and transformed into highly fertile soil.

RELIGIOUS RITES INCLUDED SYSTEM OF ENGINEERING AND AGRICULTURE

These processes involve a large degree of engineering skill. The ancients, who looked to the Divine Power as their guide throughout life, considered Herakles, or a hero-god of similar character bearing a different name in other parts of the Mediterranean world, as the Divine teacher and herald of the rites of the earth-goddess and her religion.

Those rites included a system of engineering, agriculture, horticulture, domestication of animals, and so on, adapted to the various regions of the Mediterranean lands. Among those Mediterranean lands Asia Minor occupies an outstanding position as the best example of growth, development, wealth, and decay.

I give one example of the need for engineering skill, where I might give a hundred.

In 1907 we were making excavations on the slopes and at the foot of the Kara-Dagh in Lycaonia. On the mountain side we observed above the ancient city the traces of a system of terracing which had been almost completely swept away. The terracing was most conspicuous on the banks of a dry course, where water ran down from the mountain side during rain.

In the following year we returned to complete the work. The oval recess in the mountains, where the ancient city lay

Photograph by W. P. Whitlock

A CORNER OF A CARAVAN KHAN OF SMYRNA

Although Smyrna is connected with the Anatolian railway system, much of the commerce with the hinterland is carried on with camels, which file into the city over the Bridge of Caravans. Carpets, tobacco, silk, green acorn cups used in tanning, and the figs which have carried the name of Smyrna to all parts of the world are the chief products of this greatest of Asia Minor cities, now largely in ruins.

surrounded by fields of growing corn, had changed its aspect so completely that we could recognize it only from the position of the mountains and the position of the ruins. The fields of corn were changed to a waste of gravel.

As we began to wander over the waste, we saw that the gravel overlay growing corn, which could be seen in some places struggling through where the gravel was least deep.

An exceptionally heavy rainfall and thunderstorm had occurred not long before our arrival; the rain-water had carried down from the mountain side through the watercourse an immense mass of gravel and disintegrated rock which overwhelmed the fields, and within two hours the entire harvest on which the village depended for food during the ensuing year disappeared.

In older time the numerous terraces would have detained the water from point to point right up the mountain side, preventing it from ever acquiring a volume sufficient to sweep down in a destroying flood. Trees also formerly served to detain the water by their roots.

Now, when the trees and terraces and every means of storage have been destroyed, the rains of spring, instead of being a blessing, are often a curse.

Such a storm as that which wrecked this valley does not occur except, perhaps, once or twice in a century; but the land has been cultivated for many thousands of years, and in that time many such storms have occurred. They can be controlled and made beneficent, or they may be left uncontrolled to devastate the neighborhood.

PEOPLE STIMULATED TO HARD WORK BY NECESSITY

It is not too much to say that the greatest gift of God to the men of the Mediterranean land was a soil that required hard work and scientific skill to make it productive, not a land where food grew with the minimum of labor and care.

The people were stimulated to hard work because this was necessary to life;

Photograph by Cass Arthur Reed

THE CARAVAN BRIDGE ROAD IN SMYRNA

As in modern ports around the world, one sees strange contrasts in Smyrna. The milkman has delivered his milk in the original packages and is driving his flock to pasture. The city is sufficiently occidental to have its sidewalk bootblack, patronized by the man leaning on his cane.

but the work was remunerative and even enjoyable in the clean bracing air of most parts of the country.

They created an excellent system of trade-markets and intercommunication, which implies roads and inter-tribal or international markets, and safety for traders at the markets and on the roads, so that the products of the high ground and the lowlands could be freely interchanged.

The earliest account of western Asia Minor and the Ægean coast lands that has been transmitted to us is contained in the tenth chapter of Genesis.

One of the sons of Japheth was Javan (Greek Ion). The four sons of Javan are those Old-Ionian traders and sailors of Asia Minor who came into relation with the Semitic races during the second millennium B. C., and Genesis records the impression made on the Semites by the "Old-Ionians," who gradually colonized the whole coasts of the peninsula west, south, and north.

In Cilicia, Tarsus and Mallos were rival commercial cities at an extremely early period. Along the coasts great or small Greek colonies occupied every favorable point.

NO ATTEMPT TO FOUND A GREEK EMPIRE

These Greek colonists did not attempt the foolish task of founding an empire; they were content to trade with the people of the country and to make money.

None of these "Greek" colonies were peopled by Greeks alone; they contained a mixed population, whose basis was native, although the guiding spirit and governing genius of each was Greek. The peaceful intercourse of Europe and Asia was then in process.

Exceptions to this peaceful intermixture lay in the tendency of trade to degenerate into piracy, and in the historic events of the siege of Troy, which were wrought first by a school of Asian bards, and then by the supreme genius of one poet, into the Homeric poems.

Those old "Sons of Javan" recognized the true character of their own people: the genius of the Greeks was to penetrate and to vivify the more quiet and even stolid population of the country.

It is impossible to write an account of

this early period of the "Sons of Javan," because it has been recorded only through the coloring medium of Greek tradition and mythology, and little understood by modern historians.

Javan is more of a divine than a human figure. He impersonates the instinct and genius of the Asiatic Greeks, who pushed out in all directions—north, south, east, and west—but always by sea.

Later Greek tradition delighted to picture the Greeks of the west coast of Asia Minor as colonists, who had migrated from European Greece.

This tendency to represent European Greece as the mother country of the entire Greek race constantly reappears in history and lies at the basis of the false modern ideas which describe the Byzantine Empire as Greek, although it was, in the strictest sense, Roman in organization and law and custom and name.

The Old-Ionians were the creative and vivifying element in Asia Minor. They spring ever fresh from the geographic conditions of the west coast, as the other element grows permanently from its conditions; and both are needed to constitute a nation. The most urgent problem presented now in the realm of historical geography is to study the Old-Ionians and the Anatolian Hittites.

GREEK COLONIES GIRDLED THE MEDITERRANEAN

One of the most remarkable facts of history is the power of the Greek people to adapt itself to other nations, and thereby to assimilate nations to itself.

A host of colonies round the coasts of Asia Minor and round the entire coasts of the Black Sea and of the Ægean and the Adriatic and the Italian waters, and the Italian and French and Spanish coasts, and a considerable part of the African coast between the borders of Egypt and the countries of the Carthaginian power, seem to have regarded themselves as Greek.

Greek was the language of education and literature and of higher civilization. Although it was left to Rome to construct a stable organization of unified government and society, we must not forget that great civilizing cities of the west, like Marseille and many others, were founded from Asia Minor, and that the history of Christianity in the first three centuries is largely the story of the influence that originated from the great peninsula, the bridge and pathway of intercourse between Asia and Europe.

It would be a mistake to imagine that the Greeks of Asia were exactly similar to or entirely friendly with the Greeks of the European peninsula. There always tended to be a certain hostility between the populations of neighboring valleys; even in the same valley, city was frequently involved in war against city.

The mother city was sometimes hostile to her colonies, and still more the Greeks of Asia were hostile to the Greeks of Europe.

GREEK ART BLOSSOMED IN ASIA MINOR

It would be an empty task to enumerate the Greek colonies in Asia Minor. They varied at different periods, both in number and in power, some passing away and others founded or refounded, according to the changes in the economic conditions of the country generally.

The essential points in their character have been already noted, and the general principles of Greek life are as true at the present day as they have ever been throughout ancient history. They encircled the entire peninsula and the Black Sea.

It is more to our purpose to notice the great share that these Greek cities of Asia have played in the development of Greek literature and art in every form.

Homer stands supreme in the beginning of the world's literature. His subjects are taken from the history of the "Sons of Javan," and the general opinion in ancient and in modern times is that he was an Asian Greek himself, or that he is the representative of an Asian Greek school of bards.

Lyric poetry is represented by the outstanding names of Sappho and Alcæus and a host of lesser, though still great, names.

The Greek drama, indeed, is almost purely European; but in philosophy many of the greatest old names are Asian, and the first steps in serious speculation about the nature of the world and the work of the Divine power in relation to the world and to man belong to Asia.

The early Greek historians mostly spring

© Underwood & Underwood

ONE OF THE FAMOUS SILK LOFTS OF BRUSA

After the silkworms are killed by live steam, the cocoons are carefully dried in lofts for several months before the silk is reeled and prepared for export. The raw silk of this city, noted for its excellent quality, is shipped to Italy and France. From Brusa, at the foot of the Mysian Olympus, a short railway runs to its port, Mudania, on the Sea of Marmora, scene of the armistice conference.

Photograph from Mary Mills Patrick

A GENERAL STORE SOMEWHERE IN ASIA MINOR

This tiny shop, with most of its goods in the front window, which also serves as show-case and doorway, specializes in groceries.

from Asia: Herodotus was the climax and the greatest of the group. Greek music was largely Asian in its origin.

In the realm of art the Ionian artists preceded and gave the example to the Greeks of Greece. The Old-Ionian art had its own character, different in quality from that of European Greece, and the "Sons of Javan" were constructing great temples, adorned with all the wealth of sculpture and color, at an earlier date than the Greeks on the west side of the Ægean.

Such temples as that of Apollo at Miletus, of Diana at Ephesus, and of Kybele at Sardis, originated in an extremely remote period, though in most cases they were rebuilt repeatedly; but every one of the great Ionian cities and colonies had its own wealth of art, sculpture, and painting.

The Old-Ionian school naturally died out; artists of the Athenian school were widely scattered over the Greek world after the brief Empire of Athens in the Greek world came to an end, in 403 B. C., and they exercised a powerful influence on the art of the Ionian Greeks.

Out of this sprang the Pergamenian school and the Rhodian, which have left some of the greatest monuments of Greek art to modern times.

Photograph by Charles E. Beury

A WAYSIDE FOUNTAIN IN KONIA

Konia was once the terminus of the Anatolian railways, whose influence has done much to revive the town. Situated at an altitude of more than 3,000 feet, this present version of ancient Iconium is surrounded by fine orchards and is well watered by hill streams. Konia is about 90 per cent Turkish, but in the days immediately preceding the war had begun to take on some European characteristics.

It is necessary to go to Berlin to see the remarkable remains of the great altar at Pergamos—a structure of extraordinary size and complexity and splendor—and it is necessary to go to the British Museum to see the remains of the Mausoleum at Halicarnassus, the monument and tomb of the Carian prince Mausolus. Those cities and colonies of the "Sons of Javan" were all, from the greatest to the smallest, splendidly adorned.

The best preserved Greek theater was built in the Roman time, at the Pamphylian city of Aspendos.

The sepulchral monuments of Lycia and Phrygia, the rock churches of Cappadocia, are marvelously interesting and beautiful in different ways. Only in Asia Minor can one find the ruins of a city called still by the Moslems the "Thousand and One Churches."

This short list gives no adequate conception of the extraordinary wealth of artistic adornment in those Asiatic-Greek

Photograph by W. P. Whitlock

"SOAKING UP THE SUN"

Throughout Asia Minor, and especially on the high inland plateau, the sunny days and bitterly cold nights form a violent contrast. In the absence of adequate shelter and heating equipment, the people sun themselves before some wall which deflects the wind and reflects the heat, so that for a few hours at least the numbing cold is not felt.

towns. Of the "Seven Wonders of the World," the majority belong to Asiatic and not to European Greece.

THE HISTORY OF THE MYSTERIOUS HITTITES IS YET TO BE WRITTEN

Alongside the "Sons of Javan" there stand the little-known people called the Hittites, whose power confronted the Old-Ionians in their prime, and who were becoming a subject of modern historical investigation in its latest development when the World War interposed serious difficulties in the way of advantageous study.

There can be no doubt that there existed far back, near the beginning of history, in Asia Minor a great central empire, represented by several noteworthy cities and one great capital, situated at Boghaz-Keui, about 100 miles south of the Black Sea, high on the central plateau in northern Cappadocia.

The time, however, has not yet come to write the history of this people. A good deal has been done recently to establish an outline of Hittite history, but it remains only an outline, and mainly a recital of the exploits and monuments of great kings and conquerors, who may for our purpose be classed as the great criminals of history.

The Hittite Empire broke up during the second millennium B. C., just as the Seljuk Empire of Roum or Konia broke up into small principalities during the thirteenth and fourteenth centuries A. D.

The Lydian Empire, with its capital at the splendid city of Sardis, which was in process of excavation on a magnificent scale by an American group of scholars and enthusiasts during the years immediately preceding the World War, was an offshoot of the old Hittite Empire; but it was divided from the main Hittite world by the incursion of the Phrygians, who came in from Europe across the Dardanelles, probably during the tenth century B. C.

It is difficult to give by statistics any conception of the great wealth and the numerous population of Asia Minor in the

Photograph from Near East Relief

SPINNING COTTON AT AN AMERICAN RELIEF CENTER IN ADANA

Raw cotton is a great help to the relief worker, for it not only furnishes material for cheap clothing, but also furnishes a useful job for thousands of widows and young girls. It is no part of American relief to pauperize any one, however needy, and only the aged and the very young receive funds for which they make no return in labor.

Roman period. In the single province of "Asia" alone, to use the Roman name for the western part of the peninsula, which was the richest and the most highly educated of the whole country, there were 230 cities which each struck its own special coinage, under its own name and its own magistrates, each proud of its own individuality and character as a self-governing unit in the great empire.

Many of these cities were large, some were comparatively small, but all possessed their own municipal pride and self-assertiveness.

There was keen competition among them in respect of rank. Three of them claimed the title of "First City of Asia," and vied with one another in boasting on their coinage of the qualities which entitled them to this distinction. One is satisfied with the title "Seventh of Asia," which indicates some recognized order in the assemblies of representatives of the cities which gathered together to practice the religion of the emperors, the state worship forming the bond of unity and of imperial patriotism for the whole country.

But even taking the less developed provinces, where self-government was not such a marked feature, the distinction between a village and a city was not merely one of size; it was based on the development of home rule or local self-government in the township.

Whatever its size, a town ranked only as a village if it had not the right of self-government; but, even though small, a township ranked as a city if it was organized after the Græco-Asiatic fashion, electing its own magistrates and administering its own affairs.

DESOLATION IN A REGION ONCE DENSELY POPULATED

In traversing the most desolate district on the borders of Lycaonia and Cappadocia, where one can now drive for hours without seeing a house or a hut, we have been struck with the fact that we were traversing a country which in Roman time was highly populated and therefore highly cultivated; we were going on from village to village, so close to each other as to form a chain of residence and comfortable habitation at that time.

To take one example of the former wealth and present impoverishment of

Photograph from Mary Mills Patrick

RUINS OF THE GREAT THEATER AT EPHESUS

Famous as the site of the tumult aroused by the mission of St. Paul, the theater at Ephesus is only exceeded in interest by the Temple of Artemis, the "Great Mother" of Anatolia. In front of the theater is the inner harbor, once connected by canal with the Cayster, whose meandering course may be seen to the right.

the country, in 1882 we found a great inscription, erected about 260 A. D., recording 108 subscriptions to a purpose half religious, half patriotic, viz., the rally of paganism to support the Roman emperors in their last great struggle against the rising flood of Christianity.

The subscriptions vary from 6,000 denarii to 500. This monument happens to be complete; but there are many fragments of others similar in character. It is not possible to specify what was the actual monetary value of the denarius at that exact date. Rapid depreciation in its value was proceeding during the third century, and exact knowledge is lacking, but in any case the amount of money involved is very considerable, and this district is at the present time almost entirely lacking in coinage.

We used to find about 1880 that it was extremely difficult to get change for a dollar in any village. At first I suspected intentional reluctance, but I learned that it was largely due to actual want of coined money.

THE ARAB INVASIONS BEGIN

There remains little space for the two concluding topics. The prosperity of a country such as we have described, just as it was created by work guided by scientific knowledge, could be maintained only so long as there existed in the country a sufficiently high standard of social and economic attainment to keep in order the basis on which that prosperity rested.

Watchfulness, care, and knowledge were required to repair any fault which developed in the irrigation works and prevent any dislocation in trade.

During the third century A. D., when the Roman Empire was going to pieces, Asia Minor was exposed to frequent inroads of barbarian tribes from Central Asia, and there was for centuries almost continuous war with the Sassanian monarchs of Persia and Mesopotamia.

Thereafter arose the still greater menace of the fiery Arab inroads. The Moslem armies were knocking at the gates of Constantinople only a few years after Mohammed had fled a hunted fugitive from Mecca, and almost every year between 660 and 965 A. D., bands of Arab raiders or even great armies crossed the Taurus and ranged over Asia Minor.

Almost every city of the country was captured at least once by the raiders; yet the immense strength of the highly organized Roman society prevailed in the long run.

There arose from time to time some great emperor, such as Heraclius, about 600, who in a wonderful series of campaigns broke the Sassanian power and marched at will through Mesopotamia and Persia and Armenia, or Nicephorus Phocas, who finally ejected the Arabs about 965; and these emperors rebuilt the empire again and again.

Although the Roman civilization survived in Asia Minor, it was dislocated and out of repair.

GREAT HIGHWAY WRECKED TO STOP INVADERS

The great highway through the Cilician Gates, which was a necessary line of communication and trade, had been wrecked completely during those long wars. Byzantine troops destroyed it to prevent the Arabs from entering the Roman territory, and the Arabs naturally did nothing to repair the damage.

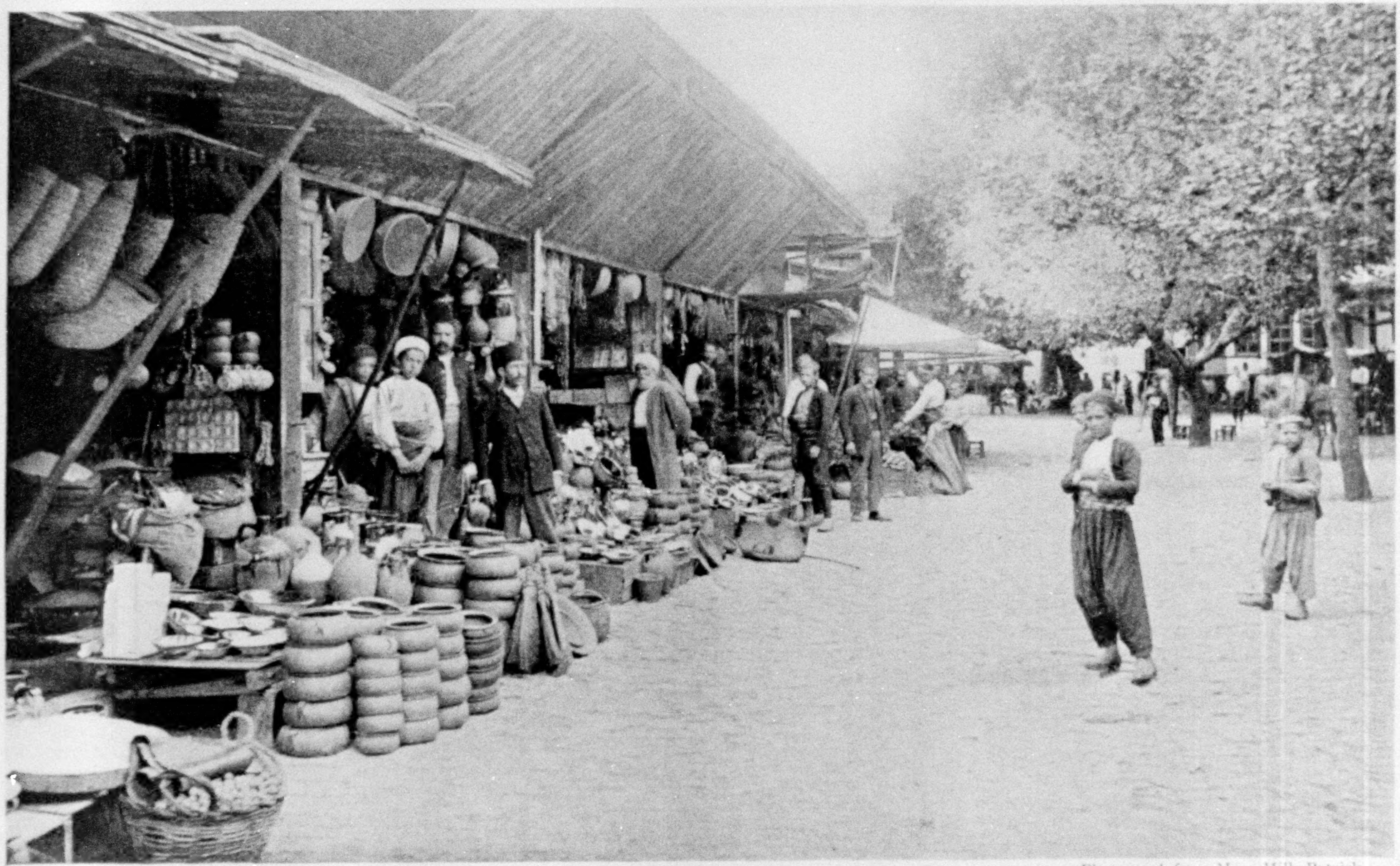
The road system generally was broken up, and very few remnants of the old Roman roadways can now be seen. The lines of road can be traced by the milestones, but the structure has usually disappeared.

The Roman social system had not been destroyed to the same degree. The Arab raids were too hurried. Moreover, there was in western Asia the old religious law of war, that the invader might destroy the annual crops and produce scarcity and famine, but he must not destroy the trees, the olives and the vines, on which the prosperity rested in so large a degree.

Annual crops can be resown next year, but trees require many years before they begin to reward the labor bestowed upon them.

It was left to the Crusaders, under the command of German and Norman and Frankish nobles and bishops, to inaugurate the era of the total destruction of a country by cutting down the trees.

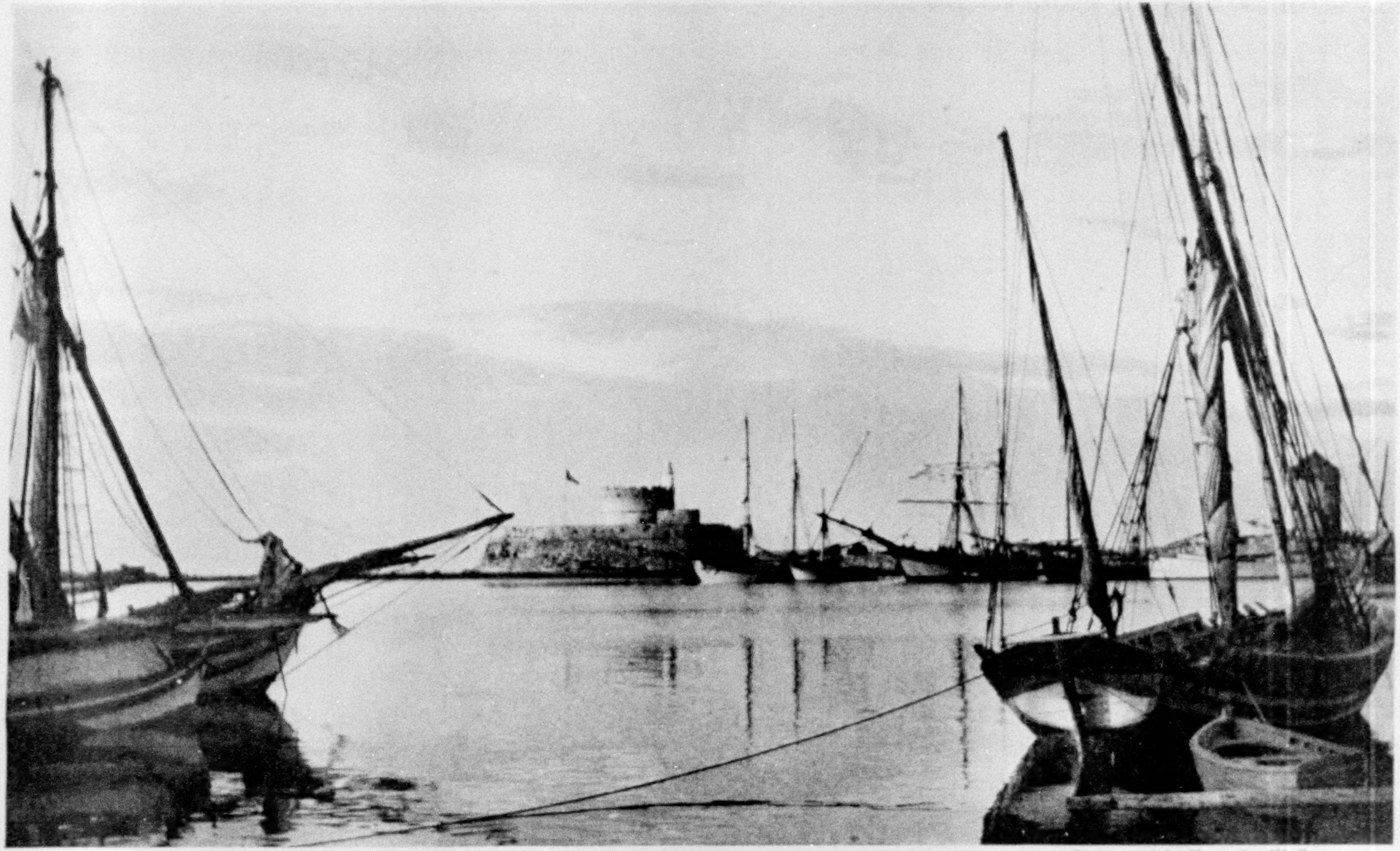
Sometimes this was done as an urgent war measure. For example, during the siege of Jerusalem by the warriors of the First Crusade, in 1100, almost all the olive trees around Jerusalem were cut



Photograph from Mary Mills Patrick

A STREET OF POTTERY SHOPS IN AN ASIA MINOR TOWN

As in Damascus, there is a street or section of the towns in Asia Minor devoted to each kind of merchandise. The fez, or tarbouche of the city dweller, the wide Turkish trousers of the peasants and caravaneers, the white turban of the religious man, and the gay-colored scarves, which are worn as belts, here distinguish various Asia Minor types.



Photograph by Katherine W. Stewart

THE HISTORIC HARBOR OF RHODES

To-day an outpost of Italy off the southwest coast of Asia Minor, Rhodes was formerly the base of a navy whose fame still lives. It was also the site of one of the Seven Wonders of the Ancient World—the Colossus, a statue of Helios more than a hundred feet high, which was overthrown by an earthquake in 224 B. C. and sold to a junk dealer nearly nine centuries later.

down in order to form siege machinery. It was only in the latest development of "civilized" warfare that the plan was adopted of deliberately cutting down all trees in order to destroy the prosperity of a foreign country.

Asia Minor enjoyed a period of recuperation after 965. The boundaries of the Roman Empire were extended farther to the east than ever before. The cultivator of the soil could enjoy security of tenure and look forward with confidence to reaping the fruits of his toil. He could repair the watercourses and the supporting walls of the terraces on the hillside.

THE TURKS ARRIVED IN 1070

But a greater danger supervened when the Turks entered Asia Minor in 1070. With them and behind them came wandering tribes from central Asia, who are called by the Byzantine historians Nomades or Tourkomannoi.

These broke the strength of an organized society by reducing a great part of the country from the agricultural to the nomadic stage. The supply of food diminished accordingly, and with the waning food-supply the population necessarily decreased.

A decreasing population in its turn was unable to supply the labor necessary to maintain the old standard of water engineering, on which prosperity rested. Gradually industries languished and died in the towns as well as agriculture in the country.

The sultans did what they could. Neither the Seljuk Turks nor the Ottoman Turks were actuated by religious fanaticism. They wished to preserve the old social system in so far as it was consistent with the dominance of a conquering caste; but they could not maintain the education which was necessary in the old Roman organization.

Moreover, the ruinous method of massacre was resorted to sometimes in order to prevent any dangerous development among the subordinate races. This has been carried to a hitherto-unknown extreme during the last thirty years, and reprisals have not been unknown when opportunity offered.

Thus the whole basis of prosperity was wrecked, not by intention, but by steady decay. A number of causes coöperated and each cause intensified the others.

Can the prosperity of this derelict land be restored? That is largely a question of politics and is excluded from discussion here; but one may say that for a long time it has been the game of all the surrounding countries to prevent the restoration of prosperity in Turkey.

This policy has often been carried out with the minimum of regard for the interests of the oppressed nationalities by their so-called friends.

There is required, for the actual recuperation of the land, knowledge to guide labor. The schools and colleges established by the American missions were achieving a great work until the World War began. Among the numberless legacies of evil that have remained has been the interference with this work of training the country.

Advisers are required, and technical trainers, in order to restore the ancient methods of conserving the water-supply or substituting better methods.

Agriculture will be developed slowly and it will take a long time to put many parts of the country into cultivable condition.

There are minerals as well as many other forms of wealth which the country tenders to the use of man. Copper and lead were once mined, and the silver mines of Bulghar Maden had been worked continuously from the Hittite period until quite recent times.

Copper was worked at Arghana and at a place 20 miles north of Konia, but has been exhausted. Yet there are large deposits of minerals still to be worked, especially in the Taurus region.

Gold was formerly extracted in Lydia and in Mysia.

These and many other minerals, such as chromium, can be or have been worked successfully under good management; and they would provide what is one of the greatest needs of the country—work for men who in times of peace are extremely eager to work, but who rarely find anything to do by which they can earn a dollar a week.

Meanwhile the restoration of agriculture is the indispensable basis of the country's prosperity.

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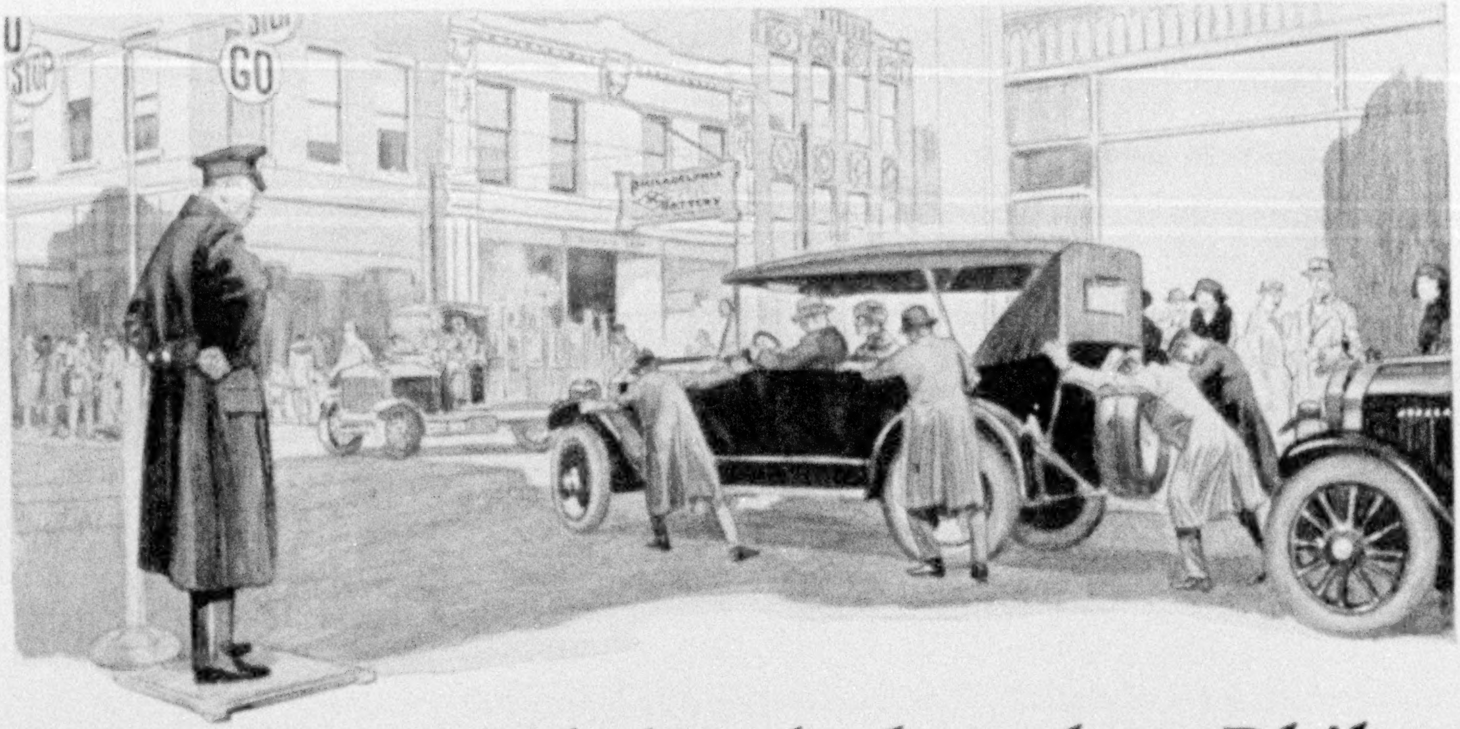

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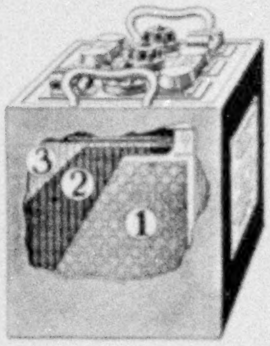

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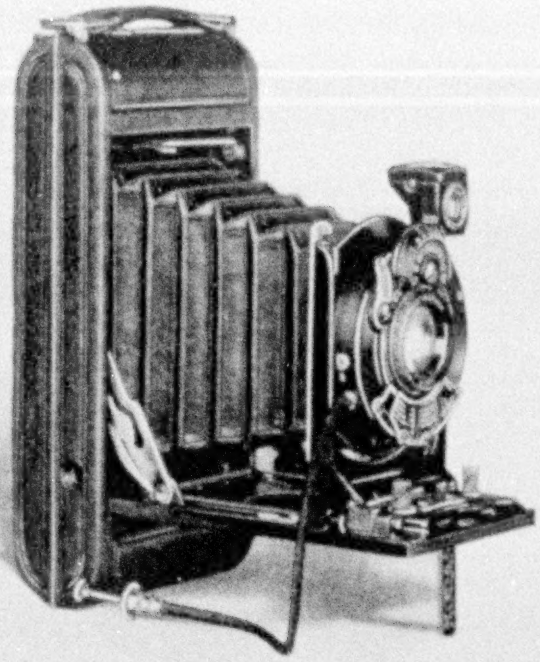

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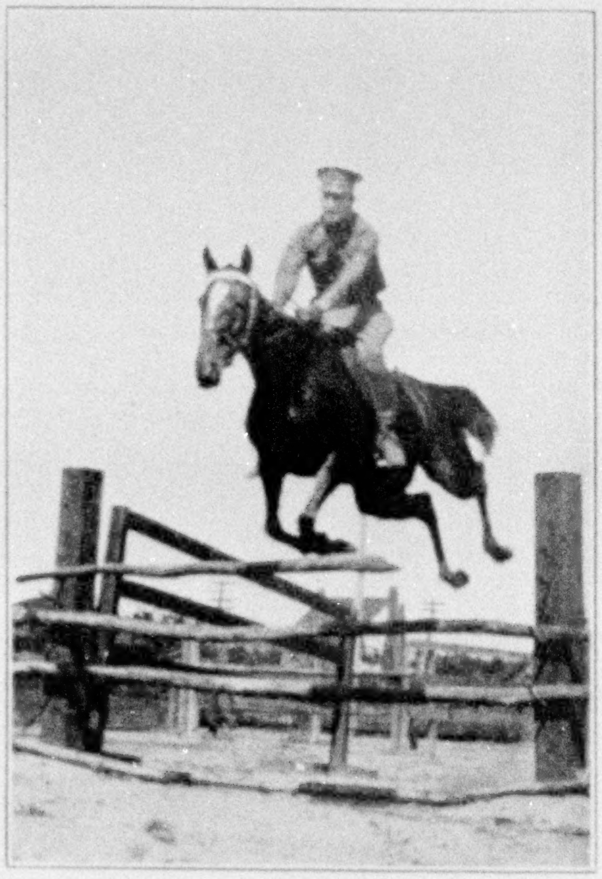

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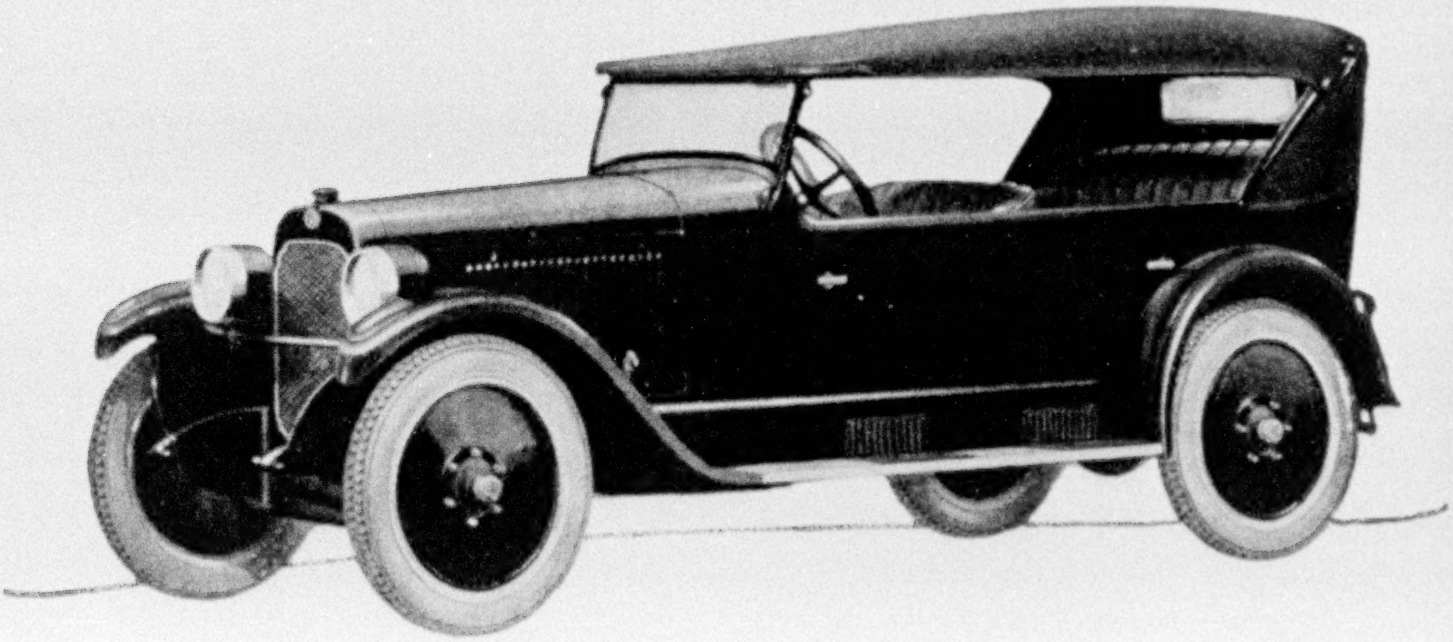

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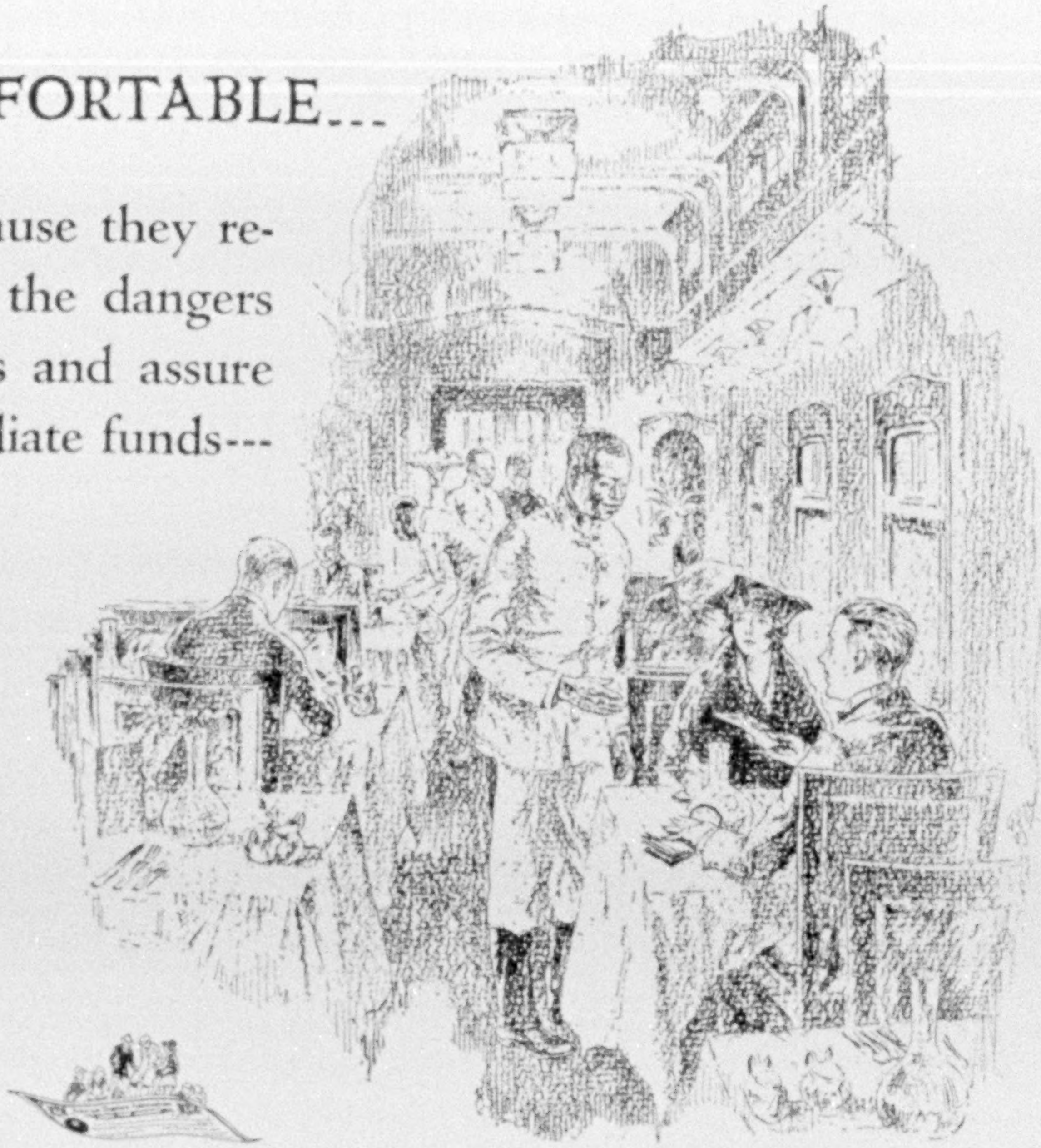

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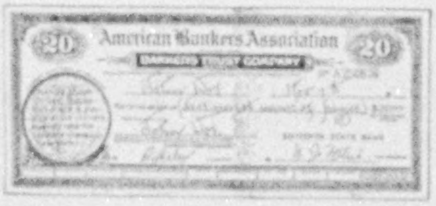

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Film has formed a great tooth problem. No ordinary tooth paste can effectively combat it. So dental science has for years sought ways to fight this film.

Two ways have now been found. Able authorities have proved them by many careful tests. A new tooth paste has been perfected, to comply with modern requirements. And these two film combatants are embodied in it.

This tooth paste is Pepsodent, now employed by forty races, largely by dental advice.

Other tooth enemies

Starch is another tooth enemy. It gums the teeth, gets between the teeth, and often ferments and forms acid.

Nature puts a starch digestant in the saliva to digest those starch deposits, but with modern diet it is often too weak.

Pepsodent multiplies that starch digestant with every application. It also multiplies the alkalinity of the saliva. That is Nature's neutralizer for acids which cause decay.

Thus Pepsodent brings effects which modern authorities desire. They are bringing to millions a new dental era. Now we ask you to watch those effects for a few days and learn what they mean to you.

The facts are most important to you. Cut out the coupon now.

Pepsodent REG. U.S. PAT. OFF.

The New-Day Dentifrice

Endorsed by modern authorities and now advised by leading dentists nearly all the world over. All druggists supply the large tubes.

10-Day Tube Free 947

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Mail 10-Day Tube of Pepsodent to

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Only one tube to a family

DODGE BROTHERS
BUSINESS SEDAN

Exceptional interest has been aroused by the practical arrangement of the interior.

The entire rear compartment furnishings—seat, seat cushions, back cushions, seat frame, foot rest, carpet and all—can be removed from the car in a few moments.

The front seat is then tilted forward, giving a gross clearance of twenty-two inches through the rear doors.

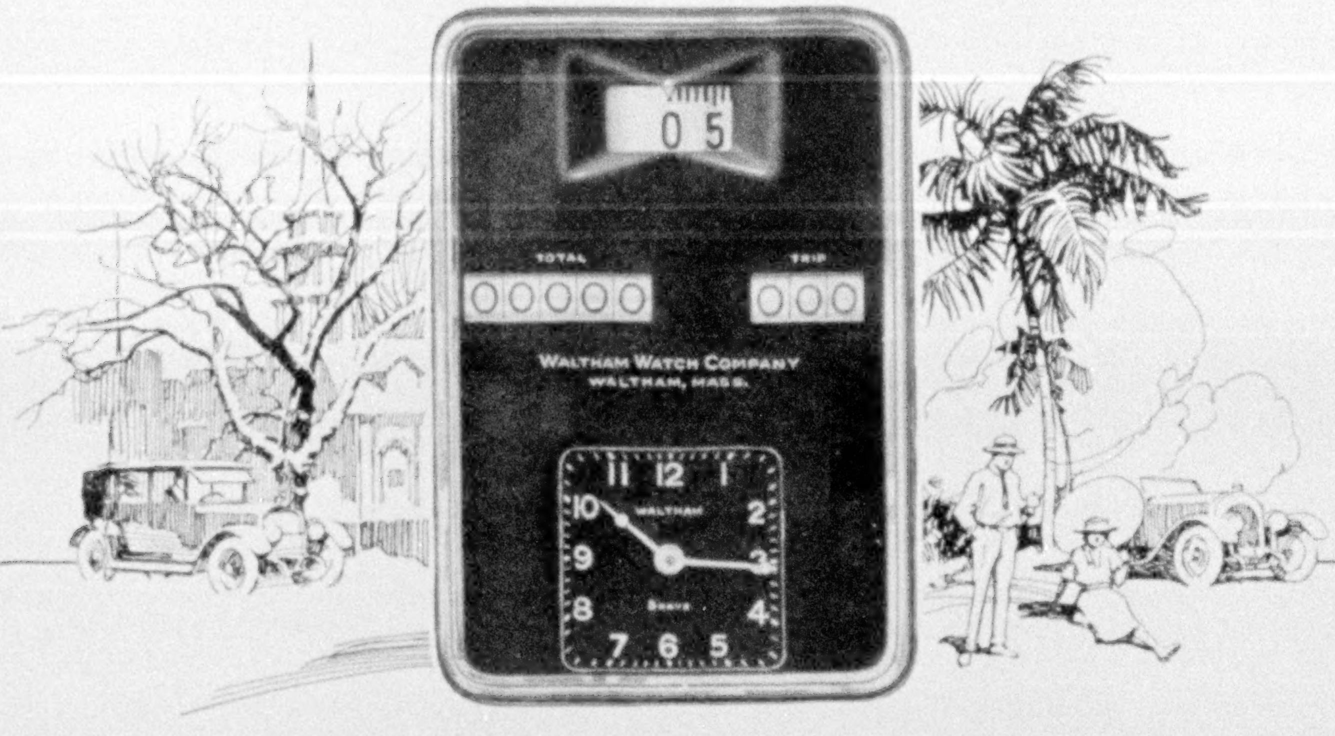
In this way, a space of sixty-four cubic feet in the rear compartment is made available for loading.

When the rear seat fixtures are back in place, the interior is complete and attractive in appearance. Its convertibility is not apparent to the eye.

Business men, farmers, salesmen, campers, tourists and everyone who has occasion, at times, to carry bulky articles or luggage, will readily appreciate the great utility of this construction.

The Price is $1195 f. o. b. Detroit

Patents Pending



Special Model

Speedometers - Clocks - Watches
and
Extremes of Temperature

HEAT expands metal. Cold contracts it. This is what happens to a Waltham Automobile Clock and Speedometer in winter time.

When the car is running, the heat from the motor permeates the clock. And we've seen cars parked in zero weather taking the coldest bath of arctic air imaginable.

Do the works of that wonder-working Waltham Clock expand with the heat until the time slows down as if it had an emergency brake clamped on it?

Do the works of that little time-keeper contract with the icy cold until the hands race over the hours as if they played tag with each other?

Not a bit of it. Smoothly, unvaryingly, dependably, that Waltham Clock ticks on, smiling from its face the correct time as if there was only one temperature in all the world. Waltham has mastered what extremes of temperature do to metal.

And the Waltham Speedometer gives you the correct mileage and speed of your car over snow-rutted roads as it does upon the smoothest boulevards in summer time.

And the same mastery over extremes of temperature is built into every Waltham Watch. You may carry your Waltham from Maine to Florida, from zero to tropical weather, and it gives you that which you bought it for — *the time.*

The world's leading motor cars are equipped with Waltham Clocks and Speedometers. And people who invest in "all the year round" time, wear Waltham Watches.

The Waltham Speedometer is the only air-friction Speedometer in the world. (Invented by Nikola Tesla.) Developed and perfected by Waltham.

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California

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ALL THE WAY

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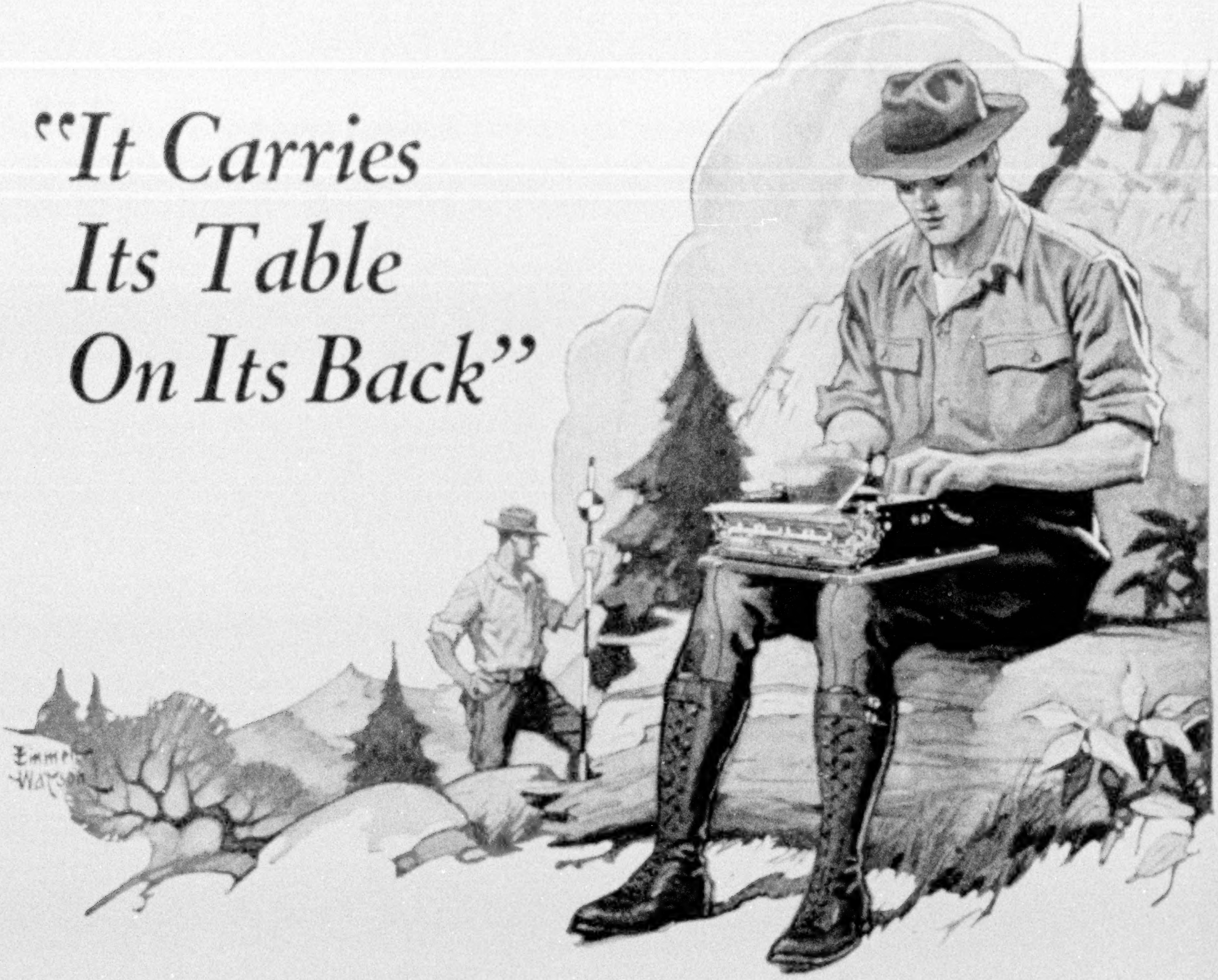
"It Carries Its Table On Its Back"



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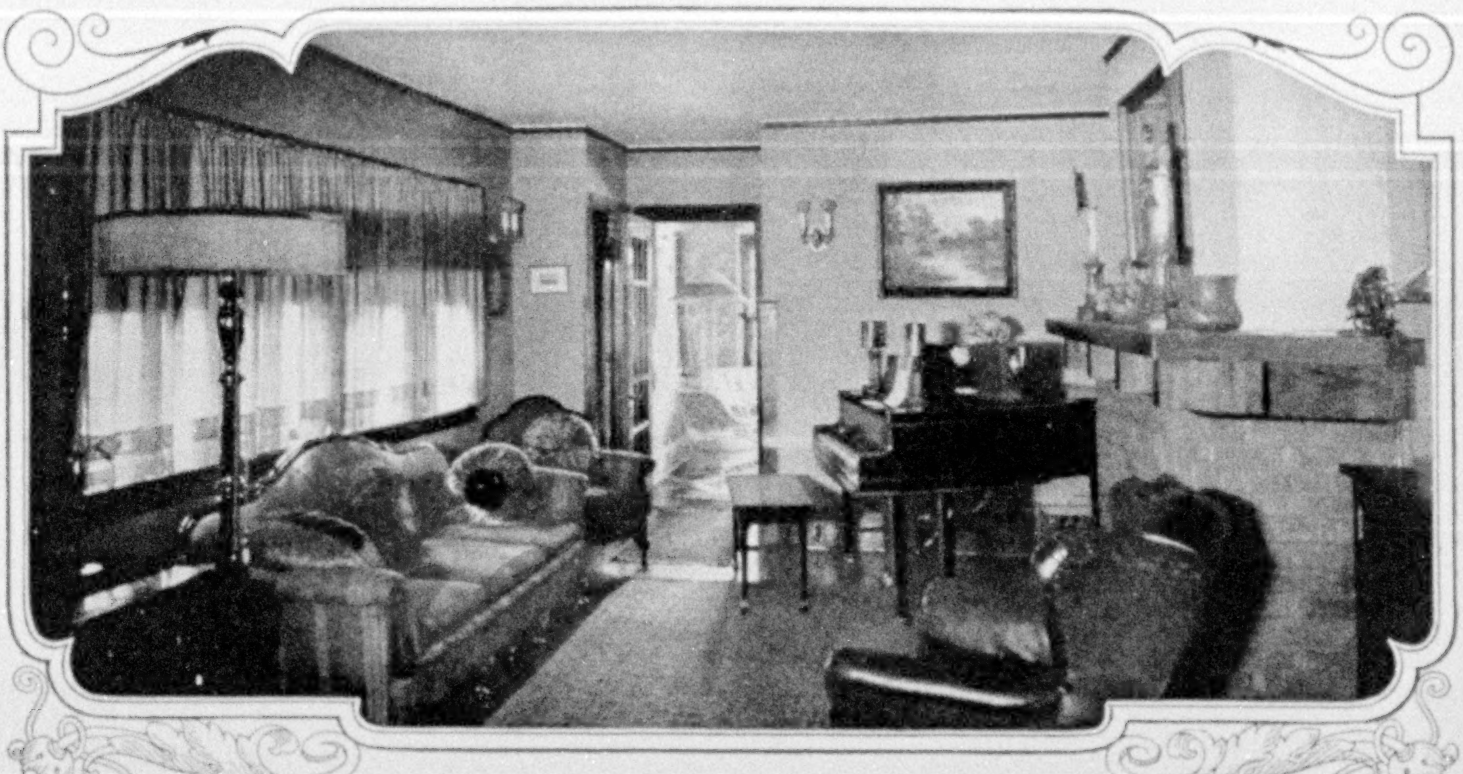

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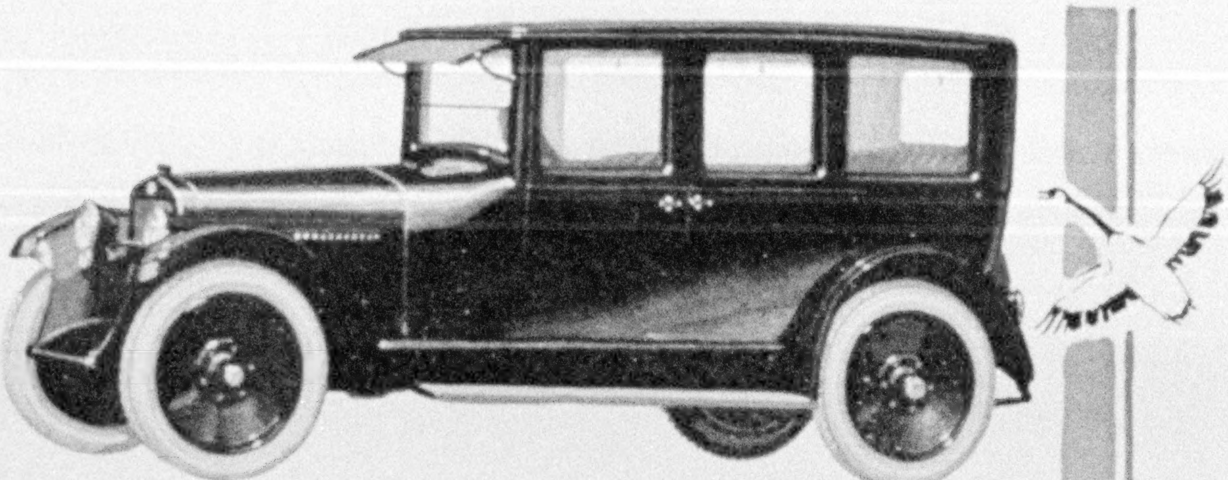

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11-22

The Richmond Pattern

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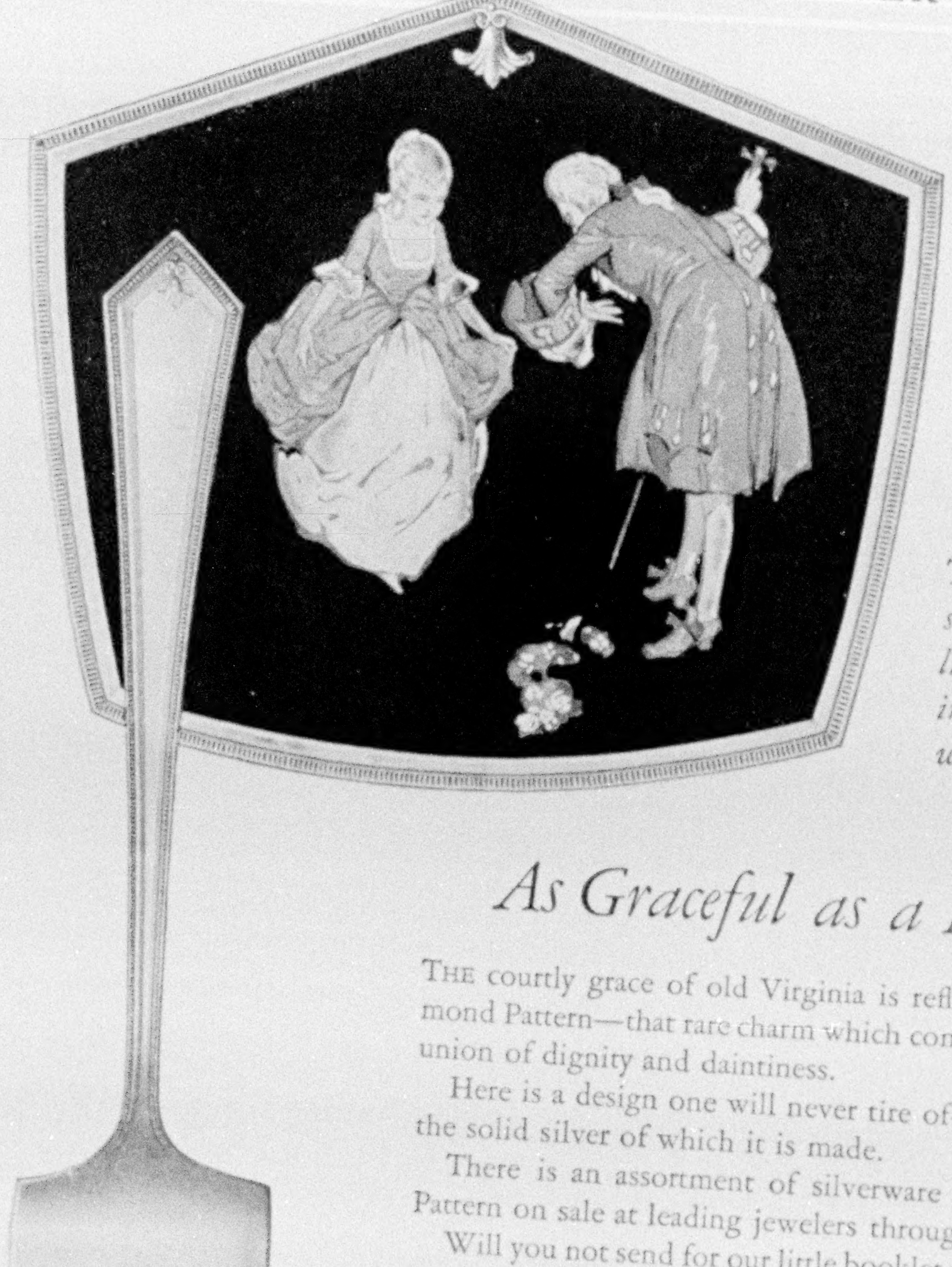

Cold Meat Fork

The purity of this design suggests the classical lines of the capitol building at Richmond, from which it takes its name.

As Graceful as a Minuet

THE courtly grace of old Virginia is reflected in the Richmond Pattern—that rare charm which comes from the happy union of dignity and daintiness.

Here is a design one will never tire of—a gift worthy of the solid silver of which it is made.

There is an assortment of silverware in the Richmond Pattern on sale at leading jewelers throughout the country.

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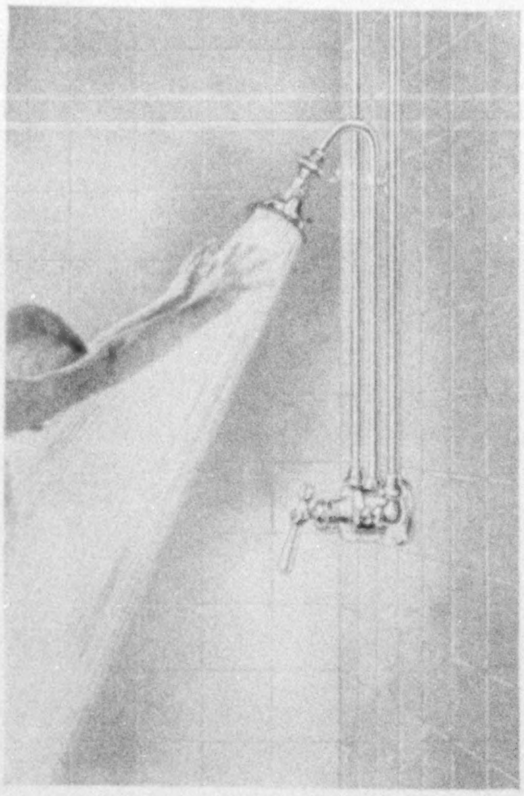

Shower Bathe
without wetting the head

—This, of course, is simply a matter of placing the shower head at the correct height and angle. Possibly a more important feature of Speakman showers for either residences, clubs or institutions is the Anyforce Head itself, which allows the bather to control the shower's volume—*instantly* regardless of the water pressure.

Both of these features are especially appreciated by women, who more and more are coming to bathe the shower way—in clean, running water.

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SPEAKMAN COMPANY
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Many's the day you will be wishing for the "pep" and "go" and fitness you felt last summer.

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That's safety, sanity—and comfort.

Grape-Nuts with cream or milk is a complete food, with the perfected goodness of whole wheat and malted barley, including the wheat vitamin, the phosphates and vital mineral elements. It digests quickly and easily without fermentation. It contains the essential bran from the whole grain to stimulate intestinal activity.

Grape-Nuts is deliciously crisp and appetizing, welcome at any meal—and it can be had in a moment.

Not only will a sensible diet, in which Grape-Nuts plays a full part, fit you for the rigors of winter, but will build up that reserve strength which will permit you to take advantage of the joys of the coming spring and summer.

Where you don't find Grape-Nuts you won't find people.

Made by Postum Cereal Co., Inc., Battle Creek, Mich.

XUM

You can wash in the Kitchen *if you like*

with this remarkable electric washing machine. Fills from the faucet and drains to sink or floor drain. Extra tubs not required. Bluing, rinsing and washing are all done in the machine and by the machine when you wash the "Laun-Dry-Ette Way". And in one one minute a whole tubful is whirled wringer dry without a wringer.

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This great enemy of fire has saved many lives, many homes.

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Fire drills are vital. Every school should have them. Every school should also be provided with unfailing exits. Who knows when fire may swoop down and exact its toll of precious lives!

In that fearful crisis doors must not refuse their aid. Imprisoned young bodies must not beat in vain against locked doors.

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So long as fire breaks out unexpectedly in crowded buildings—so long as people become panic stricken in the face of danger —so long must there be good hardware —panic-proof hardware—to stand guard over human life—*to open the doors and let people out.*

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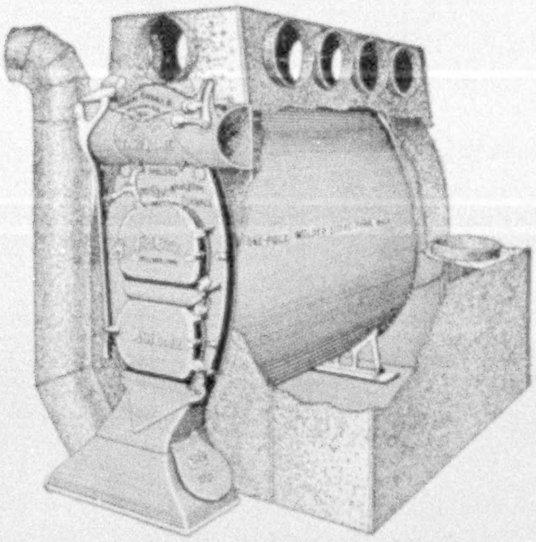

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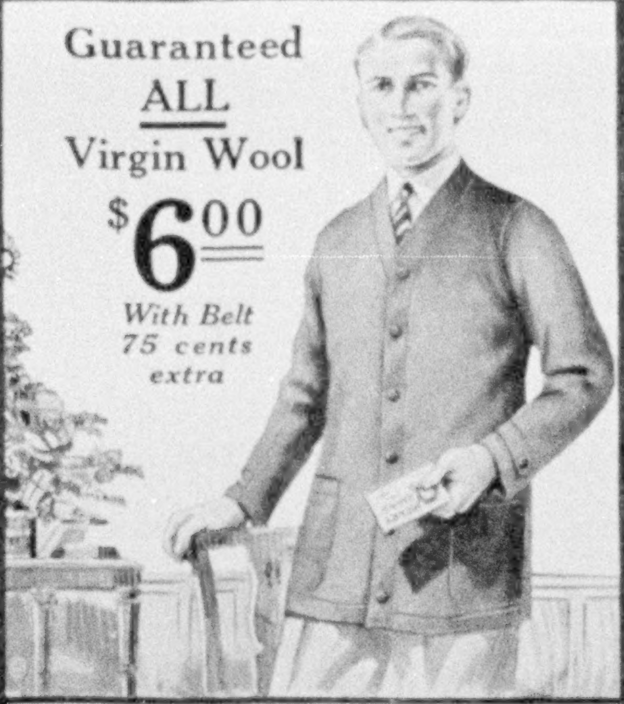

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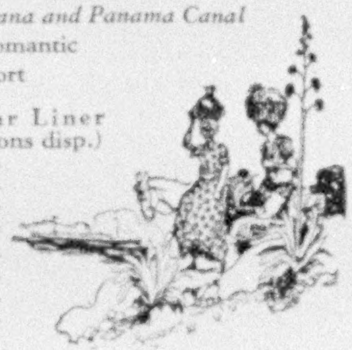

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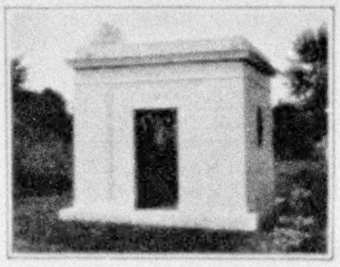

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Playground of Your Dreams—only 44 hours away—bathing, boating, fishing, trap-shooting, golfing, open-air concerts, tennis—in

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"The Sunshine City"

Where the sunshine is in people's hearts as well as overhead, and where you will find friendliness on every hand. Splendid accommodations to suit every one.

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***ONWARD* into lives of joy, service, poise, self-control, high purpose, effectiveness, and patriotism!**

JOHN MARTIN'S BOOK

The CHILD'S MAGAZINE
Makes Good and Happy Children

IT is a maker of HAPPINESS. It is companion, friend, and wise guide. It forms good morals, good taste, and good manners. Its art is perfect and its English unimpeachable. It is pedagogically accurate, but sympathetically understanding of the child's nature and rightful desires.

It teaches, by wise mental guidance, consideration of others, fearlessness, honor, truthfulness and obedience, thrift and patriotism.

John Martin's Book and John Martin's work are dedicated to childhood, honestly and sincerely. The Magazine is more of a national *institution* than a purely business enterprise. Thousands of parents, teachers, and thoughtful lovers of children endorse John Martin's Book and will confirm our brief statement of *facts*.

With love and wisdom it is arranged for children from three to ten years of age.

It is and has all the qualities of a *good book*, in contents, form, paper, and strong binding.

ITS PRICE PER YEAR IS $4.00

IT GIVES HAPPINESS AND

Countless Pictures in color and line
Games to Play
Things to Do
Plays to Act
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Nature and History
Bible Stories
Poetry and Jingles
Classic Tales
Clean Fun
Songs to Sing
Fables and Myths
Puzzles and Riddles
Friendly Comradeship

JOHN MARTIN'S BOOK is as *necessary* to your children as food, for it is soul food. It is as *important* as clothes, for it is a mental garment of joy, clean thinking, and high ideals. It is devoted first and always to the sincere purpose of making happier, finer, and nobler *LITTLE AMERICANS*. John Martin has had and will have the encouragement and support of right-thinking *AMERICAN PARENTS*.

SPECIAL OFFER, *FOURTEEN MONTHS*, $4.00

JOHN MARTIN'S BOOK ROOM FOR *YOUR* CHILDREN

is a charming spot where the BEST BOOKS, not *all* books, are beautifully displayed, courteously presented, and intelligently selected. It is a national center for advice to earnest parents about truly formative literature for children of all ages.

RECORD YOUR NAME

to receive, without cost, John Martin's Best Book List; also our 1922 catalog of *Books and Other Things for Children*. [Both booklets FREE.]

JOHN MARTIN
33 West 49th St., New York

This offer includes Nov. and Dec. free with a new yearly subscription for 1923. Offer expires Dec. 31, 1922

I am interested in your SPECIAL OFFER. Attached you will find $4.00 (Canadian and foreign, $4.50) for *Fourteen Months'* Subscription to John Martin's Book, which please send to

Child's Name------------------------------

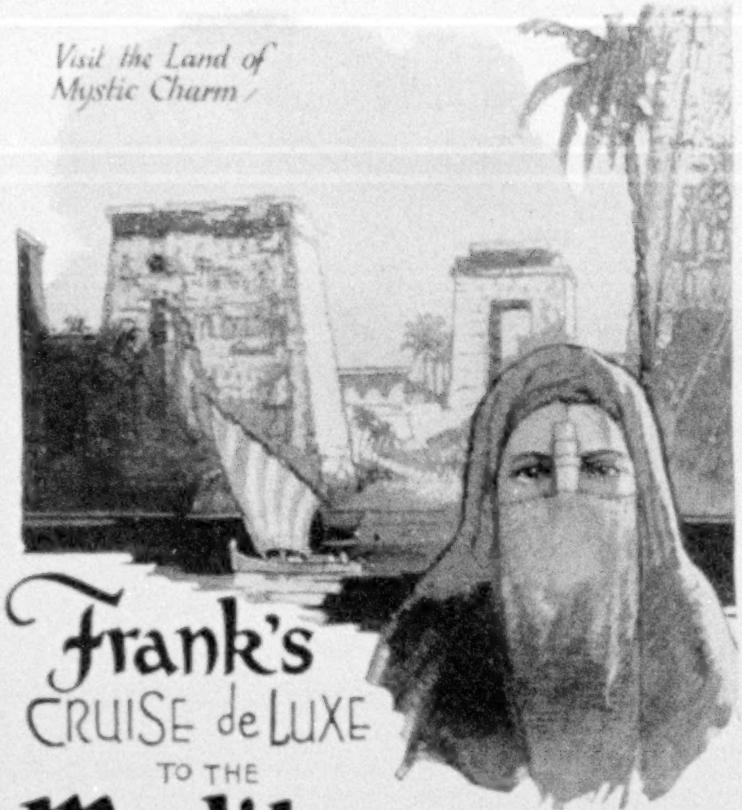
Address------------------------(State)------------

Donor's Name------------------------------

Address------------------------(State)------------

NGM
Nov.,
1922

XUM



Frank's
CRUISE de LUXE TO THE
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By Magnificent New

Cunard S. S. "SCYTHIA"

Specially Chartered

Twin-Screw Turbine Oil-Burner, 20,000 Tons
Sailing Jan. 30, 1923, returning April 2, visiting

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Madeira, Portugal, Spain, Gibraltar, Algiers, Tunis, Holy Land, Turkey, Greece, Italy, Sicily, Riviera, Monte Carlo, etc.

The "Scythia" is a veritable floating palace, with spacious decks, lounges, veranda cafes, 2 elevators, commodious staterooms with running water and large wardrobes; bedrooms and suites with private baths. The famous Cunard cuisine and service. (Only one sitting for meals.)

Free optional return passage at later date by any Cunard steamer from France or England.

Rates, deck plans, itinerary, and full information on request. Membership limited to 450 guests. Early reservation advisable. Apply to

FRANK TOURIST CO.

Established 1875

489 Fifth Avenue
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219 So. 15th Street
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Pleasant Evenings at Home

Keep the family together in the evenings—have them look for their pleasure at home. Many enjoyable hours can be spent with a

Bausch & Lomb Home Balopticon

This Balopticon, of new design, is a high-grade, well-built projection machine, for the projection of opaque objects, such as photographs, post cards, or pages of books. It is attached to any ordinary lamp socket, and can be operated by anyone.

A favorite use among the children is in having pages of "bed-time stories," or similar books, with their clever pictures, thrown on the screen. The book is in no way damaged.

There are many other ways for the Home Balopticon to provide genuine pleasure, at small public gatherings as well as in the home.

Write for the Home Balopticon booklet containing many suggestions for entertainment with this machine.

BAUSCH & LOMB
OPTICAL COMPANY

602 St. Paul Street, Rochester, N. Y.

New York Washington Chicago
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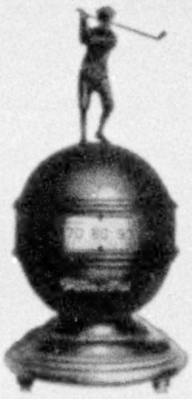
Leading American makers of Stereo-Prism Binoculars, Telescopes, Photographic Lenses, Projection Apparatus (Balopticons), Microscopes, Magnifiers, Automobile Lenses and other High-Grade Optical Products.

Therm-o-Dial



The Art Thermometer

A Beautiful Ornament—Tells Temperature At a Glance

An incomparable Christmas gift—different, new, aristocratic.

Golf model, as illustrated, stands 6¼ inches high, finished in statuary bronze, sent postpaid upon receipt of $7.50.

Other unique models, including Indian, Bee Hive, Fleur-de-Lis, and models for Nursery and Den—in art finishes, at prices ranging from $4 to $10.

Descriptive folder on request

Therm-o-Dial Laboratories

125 Sussex Avenue Newark, N. J.

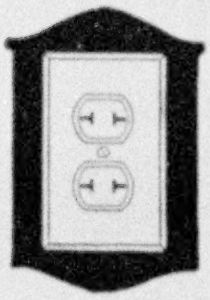
THE GLEN SPRINGS

**WATKINS GLEN, N. Y.
ON SENECA LAKE**

William E. Leffingwell, President

All advantages of European Spas without strain of ocean trip. Hydrotherapy, electrotherapy, mechanotherapy. Only place in America where Nauheim baths are given with natural calcium chloride brine. Sporty golf course. Open all the year. Booklets on request.

Must You Stop Ironing When Lights Are Needed?



The G-E Twin Convenience Outlet affords double service from a single outlet.

YOU are ironing. It grows dark. What happens? Must you stop ironing because you cannot have light and run your iron at the same time? Or do you have to move the ironing board to another room?

YOU can use any number of electrical appliances at the same time if you have *real* electrical convenience in your home.

THE time to insist upon this kind of wiring is—NOW. Whether you are buying, building, or renting, insist upon sufficient convenience outlets for the many appliances now available to lighten housework and add to comfort—vacuum cleaners, washing machines, toasters, portable lamps, etc.

PLENTY of conveniently located switches are another essential to real electrical convenience—so that you never need grope through the dark to turn on a light.

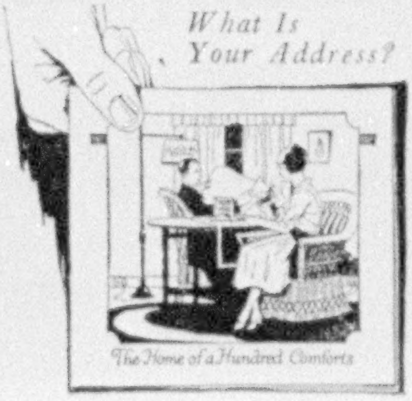
EVEN in the oldest house, complete electrical convenience can be installed at surprisingly little cost with little muss or confusion.

A New Booklet for Home Lovers

How to secure this electrical convenience in each room of your house is told in detail in a booklet prepared for you. This booklet will be sent you free, together with the name of a nearby electrical contractor qualified to assist you in planning adequate electrical convenience for your home. And if you now own your home you can have the work done on an easy-payment plan, just as you buy a piano or phonograph.

If you own or rent a home, or ever expect to, you will find this booklet well worth reading. Address Section N, Merchandise Department, General Electric Company, Bridgeport, Conn.

What Is Your Address?

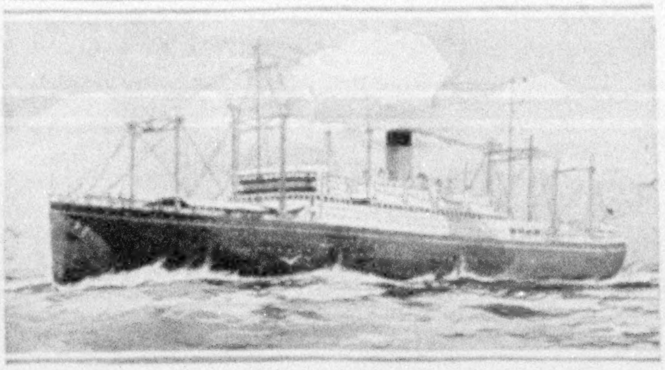


General Electric Company

General Office Schenectady, N.Y.

Sales Offices in all large cities

41-183



The Orient
via Honolulu

IF you are going to The Orient—if you are determined to escape the bitter blasts of winter in the gay, exotic sunshine of the Far East—travel over the Pacific Mail Steamship Company's "Sunshine Belt to The Orient." Winding a lazy way from San Francisco, this pleasant route over blue Pacific waters runs by Hawaii, Paradise of the Pacific, to Yokohama, Kobe, Shanghai, Manila and Hong Kong. A day's stop is made at Honolulu. Stopovers in any Eastern port may be arranged.

The ships operated by "Pacific Mail" are new, American-built oil-burners, of 21,167 displacement tons, owned by the United States Government. They are of the luxuriously-equipped "535" type—now famous all over the seven seas for speed and service. Write today for full information. Learn how you can find rest and utter enjoyment over a route that affords the best possible escape from winter, the best possible preparation for the charm and fascination of The Orient.

To Honolulu, Yokohama, Kobe, Shanghai, Hong Kong and Manila

President Taft . . . . . . Nov. 16
President Lincoln . . . . Nov. 30
President Pierce . . . . . Dec. 14
President Cleveland . . Dec. 28

INFORMATION BLANK
To U. S. Shipping Board
Information Div. PM1558 Wash., D. C.

Please send without obligation the information regarding U. S. Government ships. I am considering a trip to The Orient☐, to Europe☐, to South America☐.

Name ....

Address ....

For information in regard to sailings and accommodations address

Pacific Mail Steamship Company

508 California St. San Francisco, Cal. | 503 So. Spring St. Los Angeles, Cal. | 10 Hanover Sq. New York City

U. S. SHIPPING BOARD

Information Division 1558 Washington, D. C.

Watch your gums—bleeding a sign of trouble

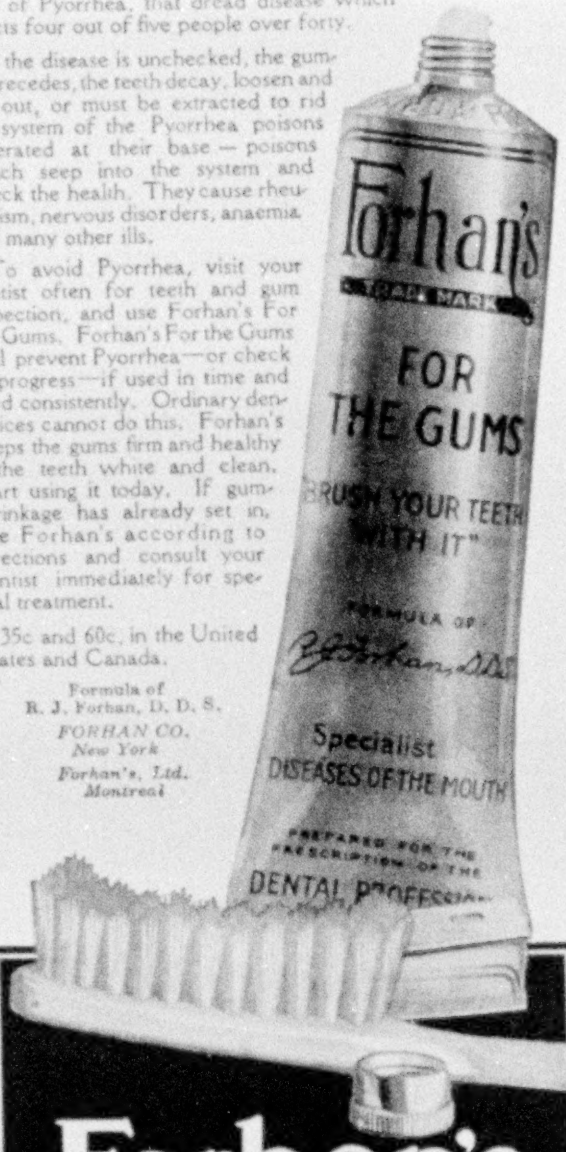
MEDICAL science knows how serious is the sign of bleeding gums. For it knows that tender and bleeding gums are the forerunners of Pyorrhea, that dread disease which afflicts four out of five people over forty.

If the disease is unchecked, the gum-line recedes, the teeth decay, loosen and fall out, or must be extracted to rid the system of the Pyorrhea poisons generated at their base — poisons which seep into the system and wreck the health. They cause rheumatism, nervous disorders, anaemia and many other ills.

To avoid Pyorrhea, visit your dentist often for teeth and gum inspection, and use Forhan's For the Gums. Forhan's For the Gums will prevent Pyorrhea—or check its progress—if used in time and used consistently. Ordinary dentifrices cannot do this. Forhan's keeps the gums firm and healthy—the teeth white and clean. Start using it today. If gum-shrinkage has already set in, use Forhan's according to directions and consult your dentist immediately for special treatment.

35c and 60c, in the United States and Canada.

Formula of
R. J. Forhan, D. D. S.
FORHAN CO.
New York
Forhan's, Ltd.
Montreal



Forhan's
FOR THE GUMS

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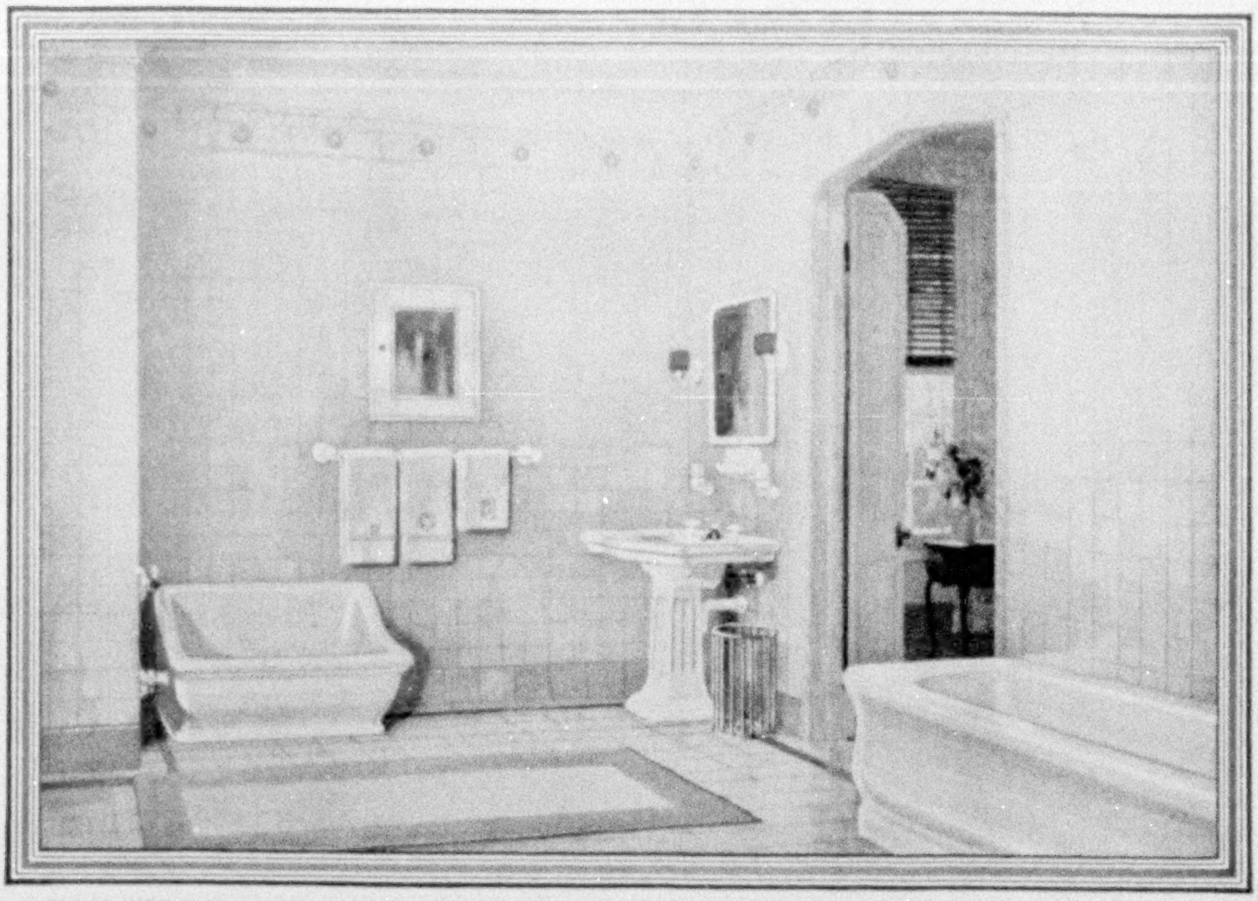

CRANE SITZ BATH, DORIC LAVATORY AND CHANDOS BATH APPEAR HERE IN TYPICAL CRANE INSTALLATION

Crane service is the outgrowth of sixty-seven years of effort directed toward better control and use of water, steam and other fluids in American homes and industries.

It provides a wide range of bathroom and kitchen equipment of distinctive design and enduring quality. Every requirement of beauty, comfort, convenience and lasting economy is anticipated and provided for — in luxurious town and country houses, in exclusive apartments, clubs, hotels, hospitals or simple cottages.

In the industrial field, Crane service duplicates on a larger scale in steam and water power installations, in pumping stations and refrigeration plants, the same Crane standards of comprehensive lines and uniform dependability and endurance.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVE., CHICAGO

Branches and Sales Offices in One Hundred and Thirty-five Cities
National Exhibit Rooms: Chicago, New York, Atlantic City
Works: Chicago and Bridgeport

CRANE, LIMITED, MONTREAL. CRANE-BENNETT, LTD., LONDON
CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO
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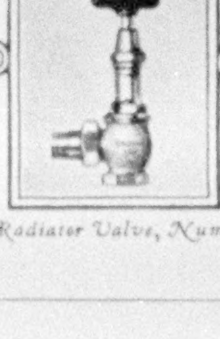
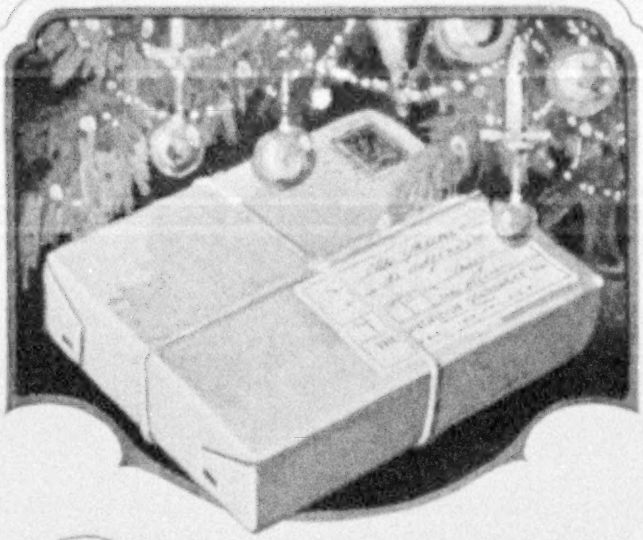


Crane Radiator Valve, Number 220



Of all GIFTS none is more tasteful than this

The unimpeachable *quality* of American Stationery, tastefully printed to meet the individual requirements of a correspondent—and its appropriate simplicity for informal and household notes, impart a distinction highly pleasing in a gift. By ordering it for *your* Christmas remembrances you will be doing what a host of nationally prominent people did last Christmas—and are doing again this year. You can do this shopping from your writing desk, as far before Christmas as you wish—and have your presents delivered as you request. Your instructions will be carried out to the letter.

200 Sheets-100 Envelopes PRINTED WITH ANY NAME AND ADDRESS for $1.00

This comprises our "Regular Package" which is made up as follows and mailed postpaid. PAPER: National Bank Bond—75% No. 1 rag stock; clear, white, fine textured; exquisite writing surface. SIZE: Sheet 6 x 7; extra heavy envelopes to match. INK: Printed in rich, dark blue ink.

For orders west of Denver and foreign countries, add 10%. Always remit with order. With the exceptional facilities of our large plant, all orders are filled with amazing speed. We have no agents or branch plants. All American Stationery is sold by mail—from Peru, Indiana.

Mail

The American Stationery Co.
Dept. 11, Peru, Indiana

COUPON

THE AMERICAN STATIONERY CO.
DEPT. 11, PERU, INDIANA

Gentlemen: Herewith is $1.00 for 200 sheets and 100 envelopes of American Stationery to be printed as shown on attached slip. (Note: To avoid *errors*, write or *print* copy plainly.)

MONEY READILY REFUNDED IF YOU ARE NOT WHOLLY SATISFIED

Real Bathroom Luxury

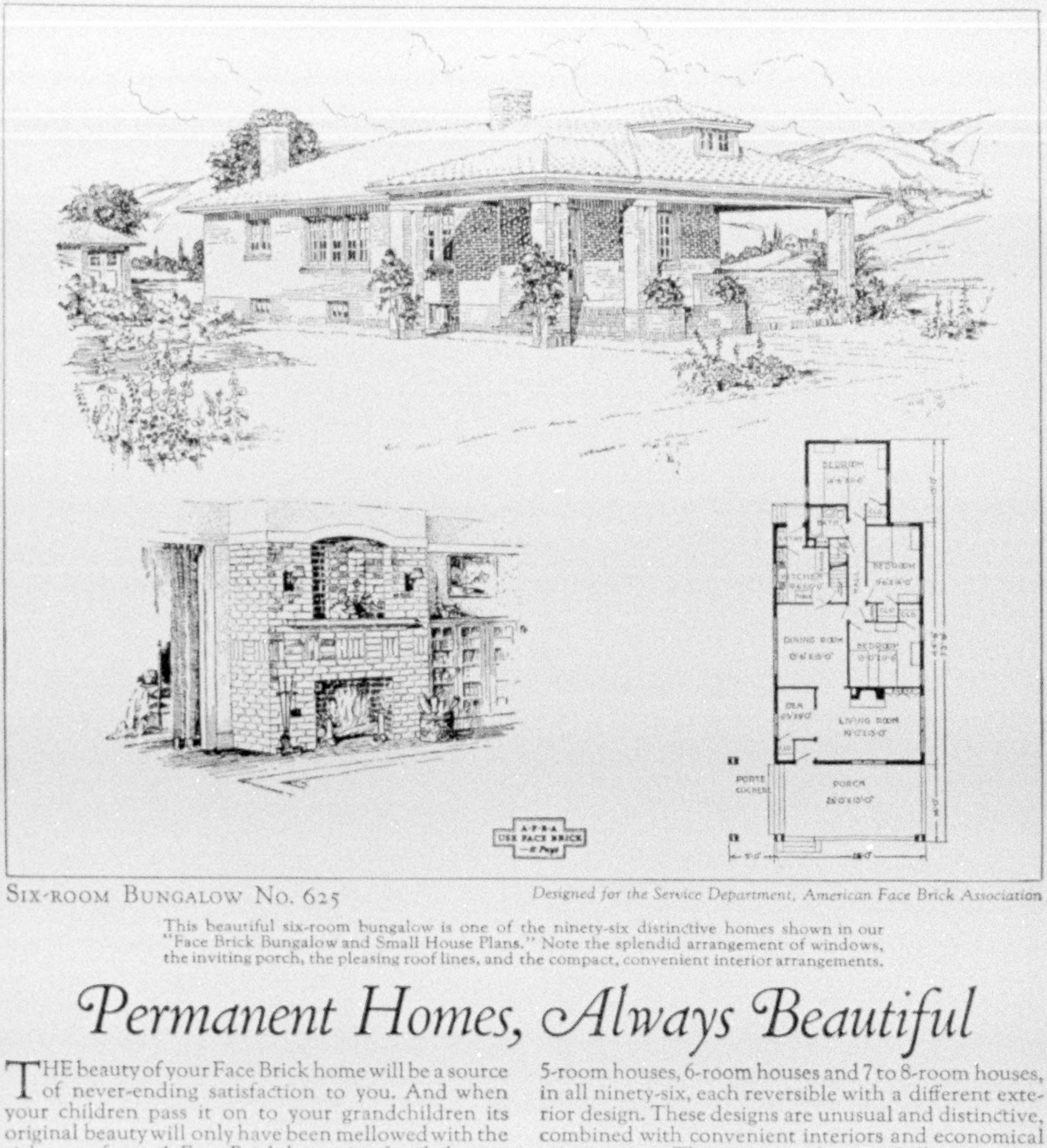
FAIRFACTS China Accessories built in the walls complete the luxury of the bath. They create a note of refinement that will be a perennial satisfaction to you. Plan to have Fairfacts Fixtures installed when your house is built. They will last as long as the house itself and being made of china will not crack or stain.

Fairfacts Accessories include soap dishes, tumbler and tooth-brush holders, towel racks, shelves, paper holders, sponge holders and safety grips. We shall be pleased to send you our booklet, *"The Perfect Bathroom."*

THE FAIRFACTS COMPANY, INC.
Manufacturers
234 West 14th St., New York City

Fairfacts Fixtures

BUILT IN YOUR BATHROOM WALLS



SIX-ROOM BUNGALOW NO. 625

Designed for the Service Department, American Face Brick Association

This beautiful six-room bungalow is one of the ninety-six distinctive homes shown in our "Face Brick Bungalow and Small House Plans." Note the splendid arrangement of windows, the inviting porch, the pleasing roof lines, and the compact, convenient interior arrangements.

Permanent Homes, Always Beautiful

THE beauty of your Face Brick home will be a source of never-ending satisfaction to you. And when your children pass it on to your grandchildren its original beauty will only have been mellowed with the richness of age. A Face Brick house is a family legacy, becoming richer in traditions in each succeeding generation.

Then, too, your Face Brick house is a sound investment. It depreciates almost imperceptibly, the walls require no repairs and are fire-safe, painting is required only around doors and windows, fuel costs and insurance rates are reduced to a minimum. From every point of view Face Brick gives you the greatest value for your building dollars.

These matters are fully discussed in "The Story of Brick," an attractive booklet with beautiful illustrations of modern homes and packed with information of value to every prospective home-builder. Sent free on request.

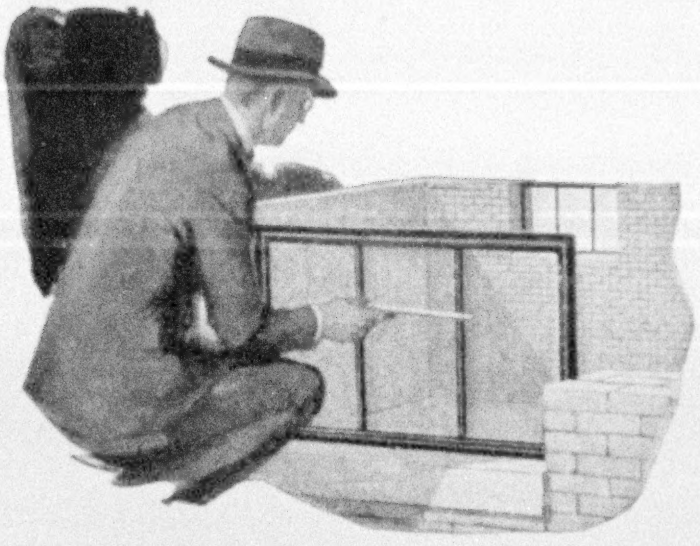
"Face Brick Bungalow and Small House Plans" are issued in four booklets, showing 3 to 4-room houses, 5-room houses, 6-room houses and 7 to 8-room houses, in all ninety-six, each reversible with a different exterior design. These designs are unusual and distinctive, combined with convenient interiors and economical construction. The entire set for one dollar. Any one of the booklets, 25 cents, preferably in stamps.

We have the complete working drawings, specifications and masonry quantity estimates at nominal prices. Select from the booklets the designs you like best and order the plans, even if you are not going to build now, for their study will be not only interesting and instructive, but helpful in formulating your future plans for a home.

You may want "The Home of Beauty," fifty designs, mostly two stories, representing a wide variety of architectural styles and floor plans. Sent for 50 cents in stamps. We also distribute complete working drawings, specifications and quantity estimates for these houses at nominal prices.

Address, American Face Brick Association, 1737 Peoples Life Building, Chicago, Illinois.

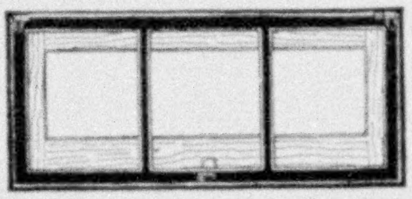
NOT HOW CHEAP—BUT HOW GOOD



What Are Basement Windows For?

Surely not to *exclude* daylight, but to let it in. The more bright, cheerful daylight the windows admit into your basement the better is your purchase.

83% More Daylight



In this illustration an actual Truscon Steel Basement Window is superimposed upon a wood window of same size. Note that the space occupied by the entire steel window including the frame and sash is no greater than that of the wood frame alone. Thus the 33¾" x 15" Truscon basement window admits 83% more health-giving daylight while even the larger 33¾" x 23" window admits 46% more.

Other Advantages

Truscon Steel Basement Windows can't stick or warp. They are always easy to open and close. They lock automatically. Their double contact weathering effectively keeps out wind, rain and snow. They are simple to install. Truscon Steel Basement Windows are furnished complete—no extra expense, as with wood sash and frame, for hardware, labor of fitting and priming coat of paint. Based on daylight area Truscon Basement Windows cost much less.

Get more daylight at lower cost

Return Coupon for Full Information

TRUSCON STEEL COMPANY
YOUNGSTOWN, O. Warehouses and Sales Offices in Principal Cities

TRUSCON
STEEL BASEMENT WINDOWS

Truscon Steel Co., Youngstown, O.
Send me information on Truscon Steel Basement windows. I am.............Owner.............
Architect.............Contractor.............Dealer.............
Name.............
Address............. NG11

National Cancer Week

(NOVEMBER 13-20)

Make It Count in Your Community

Why not mobilize the thinking people of the United States for the purpose of fighting this scourge as they have been taught to fight tuberculosis? It is equally important!

Cancer costs the United States 100,000 lives each year — or more Americans than were killed or died of wounds and disease in the World War.

Cancer, therefore, is a serious economic burden as well as a source of pain and grief.

Help Combat Cancer Ignorance

A very large percentage of cases of cancer are curable if only the sufferer seeks competent advice early enough. Many, however, wait several months or a year before they have some peculiar lump or unusual swelling intelligently investigated. It is then, perhaps, too late to save the sufferer, whereas very simple local treatment applied at the start would have wrought a permanent cure.

National Cancer Week

The purpose of National Cancer Week is to warn the citizenship of the Nation of the danger of cancer, to help the well avoid it by interpreting Nature's danger signals.

Make it your business during National Cancer Week to learn about cancer and to get others to heed warning signs in time to save them for their communities, their families, and their friends.

Ask your local Cancer Week Committee or write for information to

The American Society for the Control of Cancer

25 West 45th St. New York City

PITCAIRN

Water Spar

Varnish

WATERPROOF
and SOLEPROOF

This test is proof positive that water will not turn this varnish white—or in any way injure the coated surface.

This might be Disastrous

But *not* if the table and floors are finished with Pitcairn Waterspar Varnish. For Waterspar is *waterproof*. It does not turn white like ordinary varnish. Even hot, scalding liquids will not ruin its fine, deep luster.

In the stores of thousands of dealers you can see the Waterspar test pictured above. Month after month a wood panel finished with Waterspar remains submerged in water. It is proof that water will not turn this varnish white—or in any way injure the coated surface.

In addition to the transparent Waterspar there is also Waterspar Colored Varnish and Enamel. Eighteen attractive colors. It not only offers unusual possibilities for improving and beautifying your home, but withstands untold wear. It, too, is waterproof. Free flowing—easy to apply—a good brush is all you need.

The Waterspar Varnishes are leaders in the long list of famous products manufactured by the Pittsburgh Plate Glass Company—each known for high quality and long wear. No matter what you want in the way of glass, paint and varnish, the Pittsburgh Plate Glass Company's products include something that will meet your requirements *exactly*. Handled by quality dealers everywhere.

OUR PAINT AND VARNISH ADVISORY BOARD *will gladly consult with any manufacturer facing a paint or finishing problem and render recommendations without obligation. Booklet on request.*

Write for "Proof" Booklet

PITTSBURGH PLATE GLASS CO.

GLASS ~ Manufacturers ~ PAINT

Paint and Varnish Factories — Milwaukee, Wis. - Newark, N.J.

Send the Coupon

Chamberlin Metal Weather Strip Co., Detroit, Mich.

Tell me the cost of equipping my building with Chamberlin Metal Weather Strips (check whether home, factory, office building, church, school).

Give number of outside doors ____________
windows ____________

Name ____________

Address ____________

City and State ____________

Eng. Dept. A-2

Save Fuel Keep Warm End Draughts

You will be surprised at the small cost of equipping your home or business building with Chamberlin Metal Weather Strips.

And they add so much to comfort, cleanliness and good household economy. They save 25% to 40% of fuel costs. Keep dirt, dust, soot and smoke from sifting in. That ends one of the most tedious tasks of housework.

Why Heat Your Building 36 Times Every Day?

Tests show the inrush of cold air at unprotected windows and doors fills the average building 36 times daily. Why fight this with fuel?

How much more simple to bar it out as thousands of good home managers do, with Chamberlin Metal Weather Strips.

At 12,000,000 windows and doors Chamberlin Metal Weather Strips permanently end fuel waste and discomforts resulting from draughts. They make homes dust-proof. Protect hangings, furnishings and decorations. End rattling doors and windows.

Healthier homes result. Children are safe from cold air currents. No cold spots. You are not driven from the bright, cheerful window by chill draughts.

Free Chamberlin Strips are used on 85% of all weather stripped buildings, including homes, banks, schools, office buildings, churches, stores, hotels and apartments.

They are guaranteed to last as long as the building. Any need for service or attention, no matter how many years hence, is cheerfully done free, by Chamberlin experts. An estimate by our engineering department, on the cost of your equipment, is free. Just send the coupon.

CHAMBERLIN METAL WEATHER STRIPS
"SINCE 1893-THE STANDARD"

A Garden Full of Darwin Tulips for $2.00

In anticipation of again placing before our customers a collection of Darwin Tulips we have had a sufficient quantity grown so that we can offer

50 Giant Darwin Tulip Bulbs, Finest Mixed, for $2.00
selected from fifteen named varieties

Few spring flowering plants rival the Darwin Tulip for brilliance of bloom. Borne on strong stems often exceeding three feet. They are a wonderful addition to the flower garden.

Plant any time before the ground becomes frozen, and they will bloom from the middle of May to Decoration Day.

Mail this advertisement with check, money order, cash, or stamps, and secure this exceptional collection, sent prepaid to any point in the U. S. east of the Mississippi. **For points West and Canada, kindly add 25c. to cover cost of delivery.**

Our 1922 Fall Bulb Catalogue sent on request.

Stumpp & Walter Co.
30 and 32 Barclay Street New York

"The Comfort Route"

ROYAL MAIL

The magnificent
S. S. ORCA
25,500 tons displacement
The newest, largest and most luxurious steamer engaged in

West Indies Cruises

Sails
Jan. 24 and Feb. 24

Two delightful trips among these islands of enchantment. Rates $250 up.

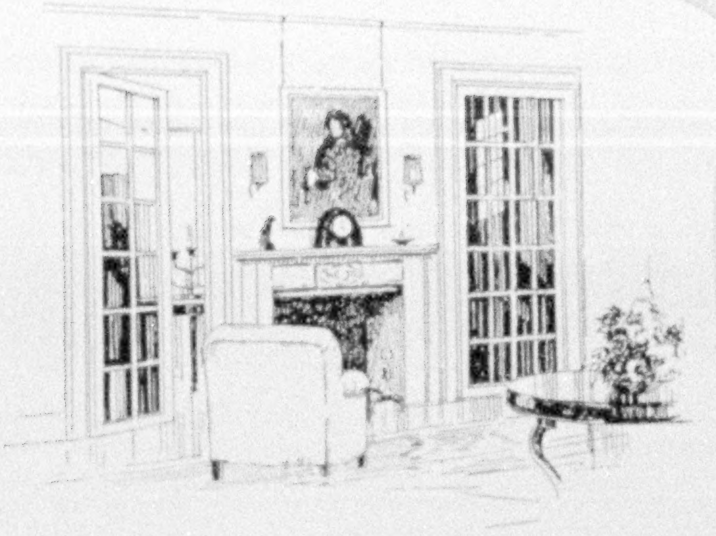
Write for Booklet G-3

BERMUDA

Leave ice and snow behind for the balmy climate of the tropics. Wonderful golf (2 new 18 hole courses), tennis, bathing, fishing. Weekly sailings on the palatial s. s. ARAGUAYA, 17,500 tons displacement, the largest ship sailing to Bermuda.

Write for Booklet G-4

THE ROYAL MAIL STEAM PACKET CO.
SANDERSON & SON, Inc., Agents
26 Broadway, New York 607 Boylston St., Boston
117 West Washington Street, Chicago



Use PLATE Glass

A mirror for balance

IS there a true lover of artistic achievement in home design who doesn't love the enchanting illusion of the mirrored door? First the subterfuge of a puzzled architect, but now the artifice of artistic effect in planning interiors.

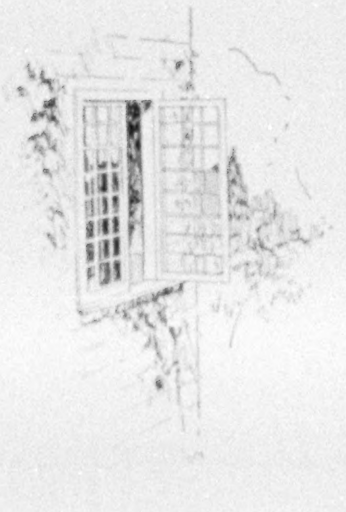
Seemingly something that it isn't, the mirrored door may add a witching air of mystery. It may hold the secret of balance essential to a restful room. It may compensate a window or a door or break the tiresome space of blank walls.

A mirror is something more than merely an article of furniture to be hung up. Considered in the building of house or apartment, and in the hands of a skillful artist, it may play an important part in the architectural scheme.

If you are building, have your architect specify plate glass mirrors in bedroom doors, closet doors, bathroom doors, medicine-cabinet doors, over the mantel and paneled French doors.

Ask your architect, too, about plate glass in the windows. A well-designed house, the pride of its owner and builder, deserves nothing less than plate glass in its windows. Its beautifully polished surfaces and crystal clearness make all the difference in the world in the external appearance of the house. Yet the difference in cost between plate glass and common sheet glass is surprisingly small. Get comparative figures from any glazing contractor or builder.

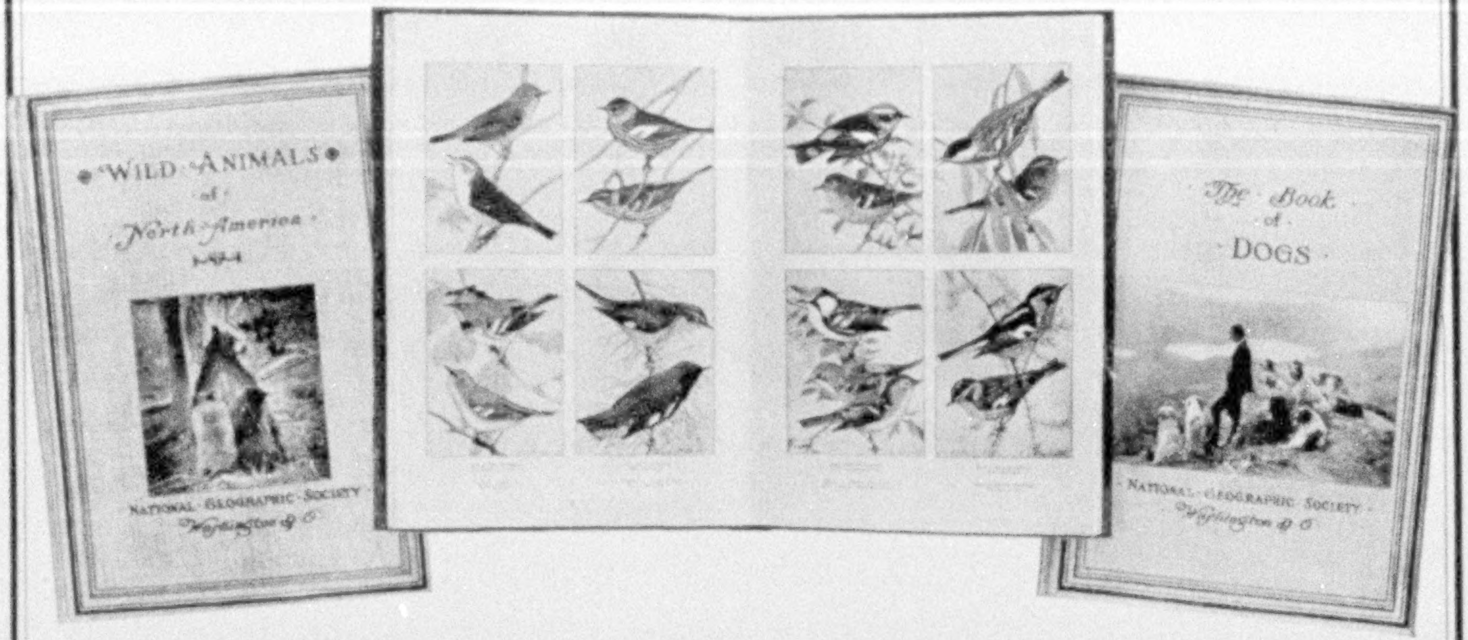
PLATE GLASS MANUFACTURERS *of* AMERICA



Genuine
PLATE GLASS
MADE *in* U.S.A.

Nothing Else is Like it

Plate Glass is best for:
- Hotel, Office-Building and House Windows
- Windshields
- Closed Car Windows
- Desk Tops
- Table Tops
- Window Ventilators



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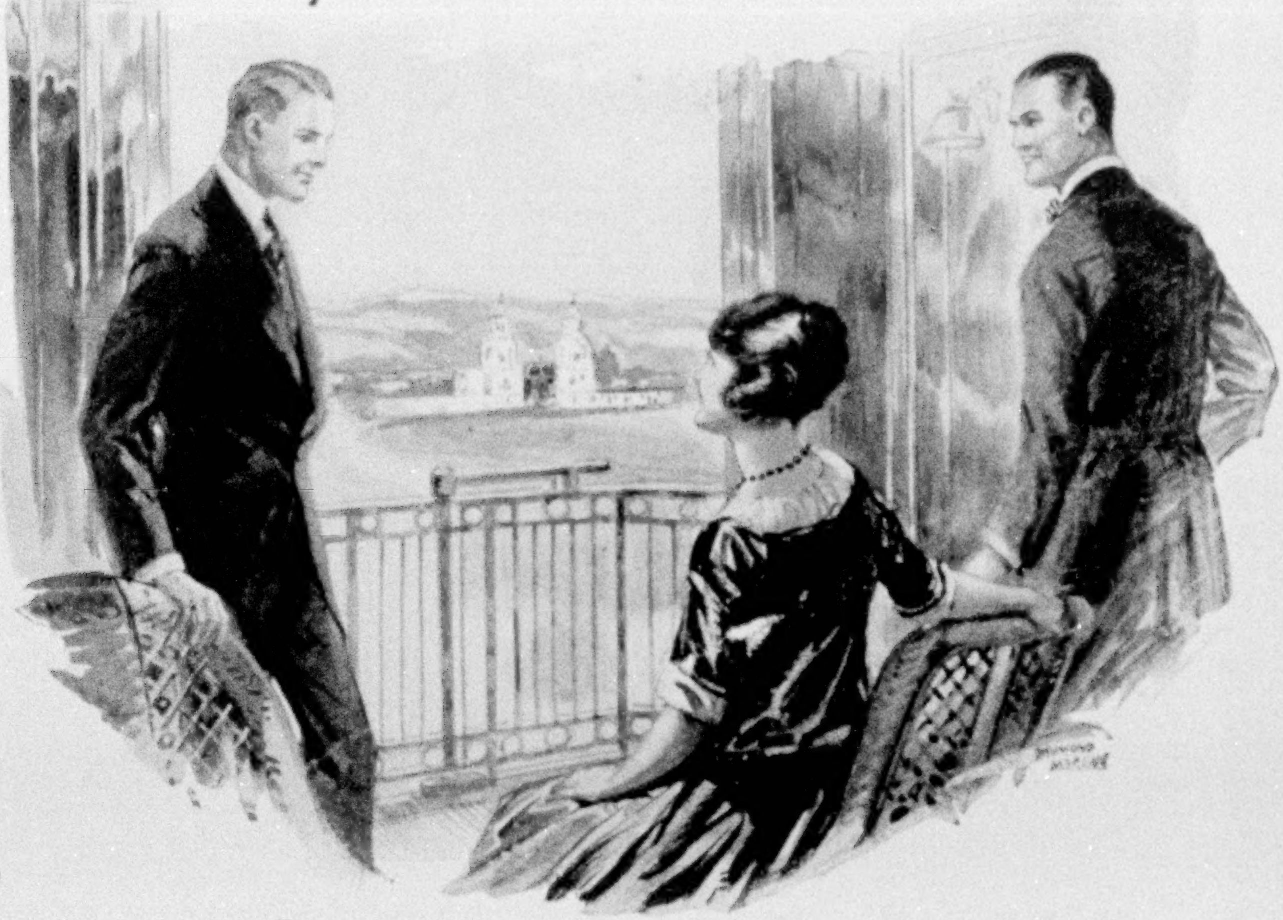

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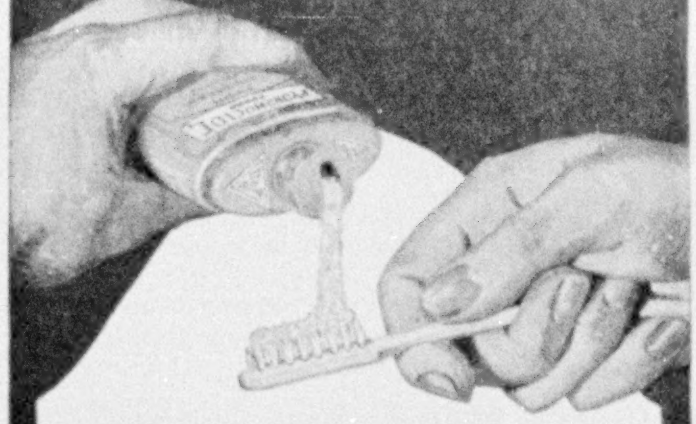

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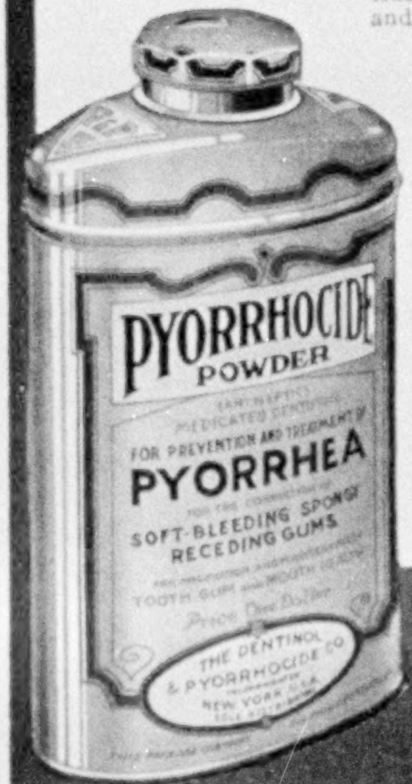

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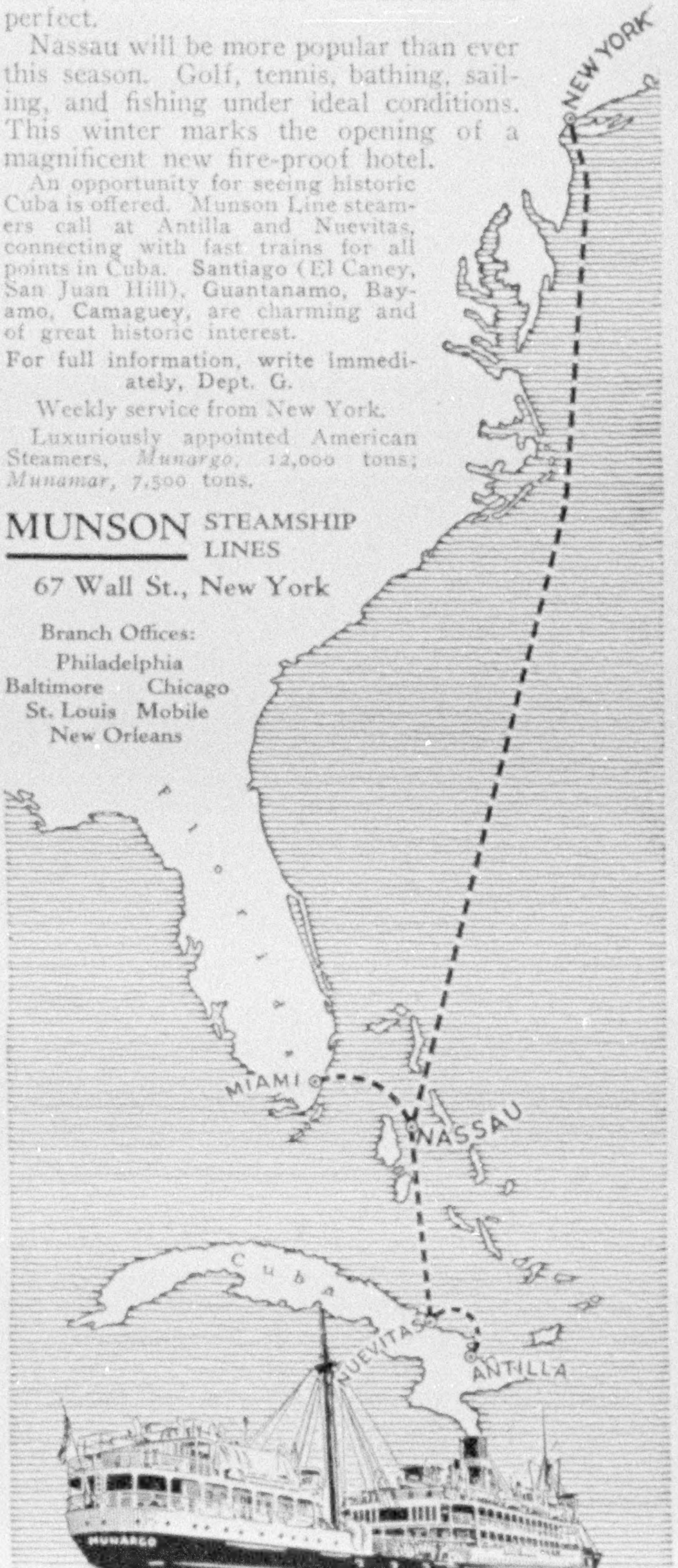

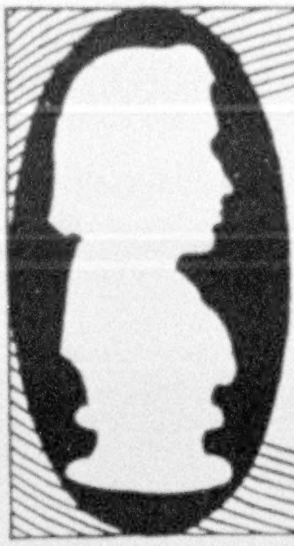

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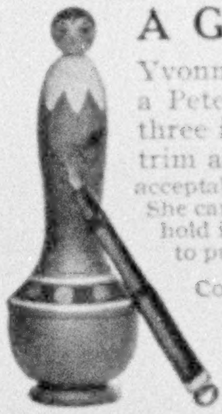

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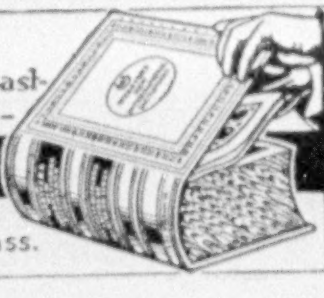

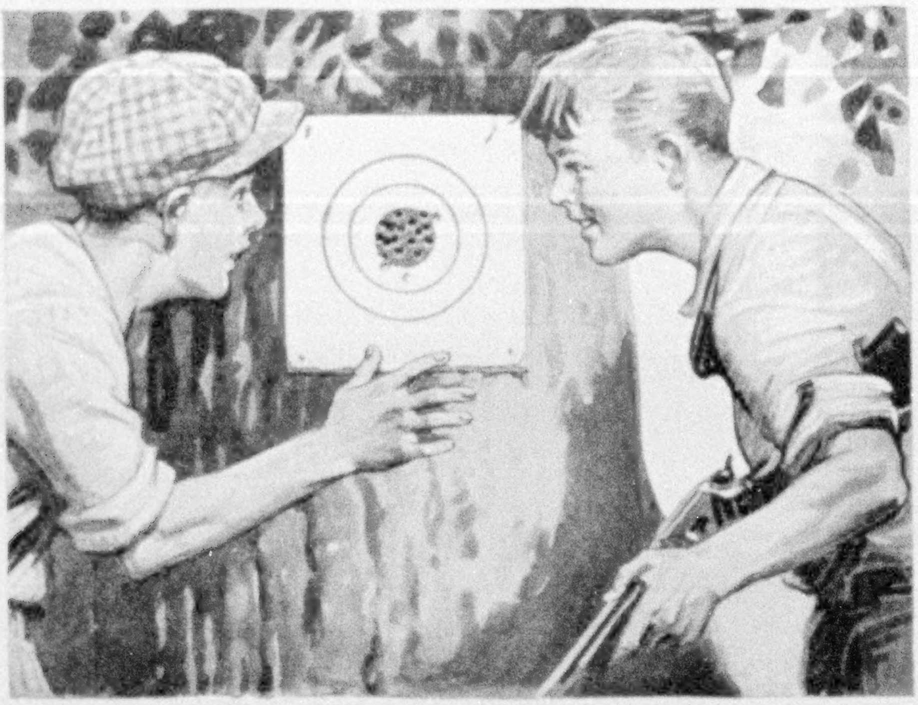

For bull's-eyes—lead!

THE boy who prides himself on the accuracy of his target shots credits only his steady hand and true eye. He gives little thought to the fact that the bullet is always made of lead because no other material speeds so straight. It is the same at the traps. From the trap is thrown a clay pigeon. A sharp report and the target flies to pieces. Shot made of lead go straight, covering just the right area to catch the whirling disc.

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Once bullets and shot were loaded separately from the powder. Now the lead and powder are encased together in a paper or metallic package called a shell or cartridge.

It is interesting to note that lead is important in other sports besides target and trap shooting, but for an entirely different reason. Lead is used in the rubber of the tennis ball, the football, and the baseball to give toughness.

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For outdoor work painters generally prefer to use straight "lead-in-oil," a mixture of pure white-lead and linseed oil. White-lead with flatting oil with colors-in-oil added makes a paint of any color for interior work and gives a beautiful finish.

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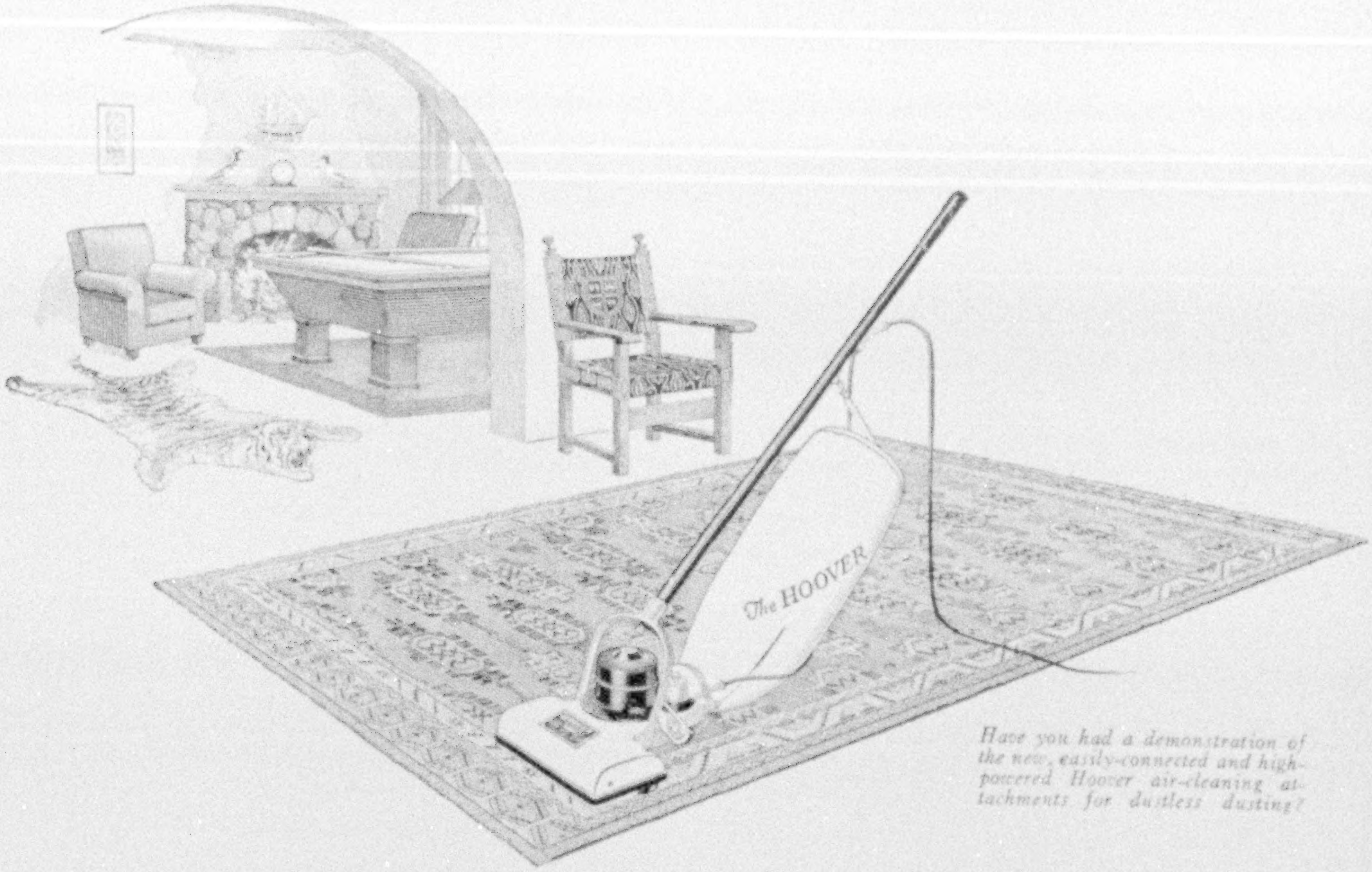

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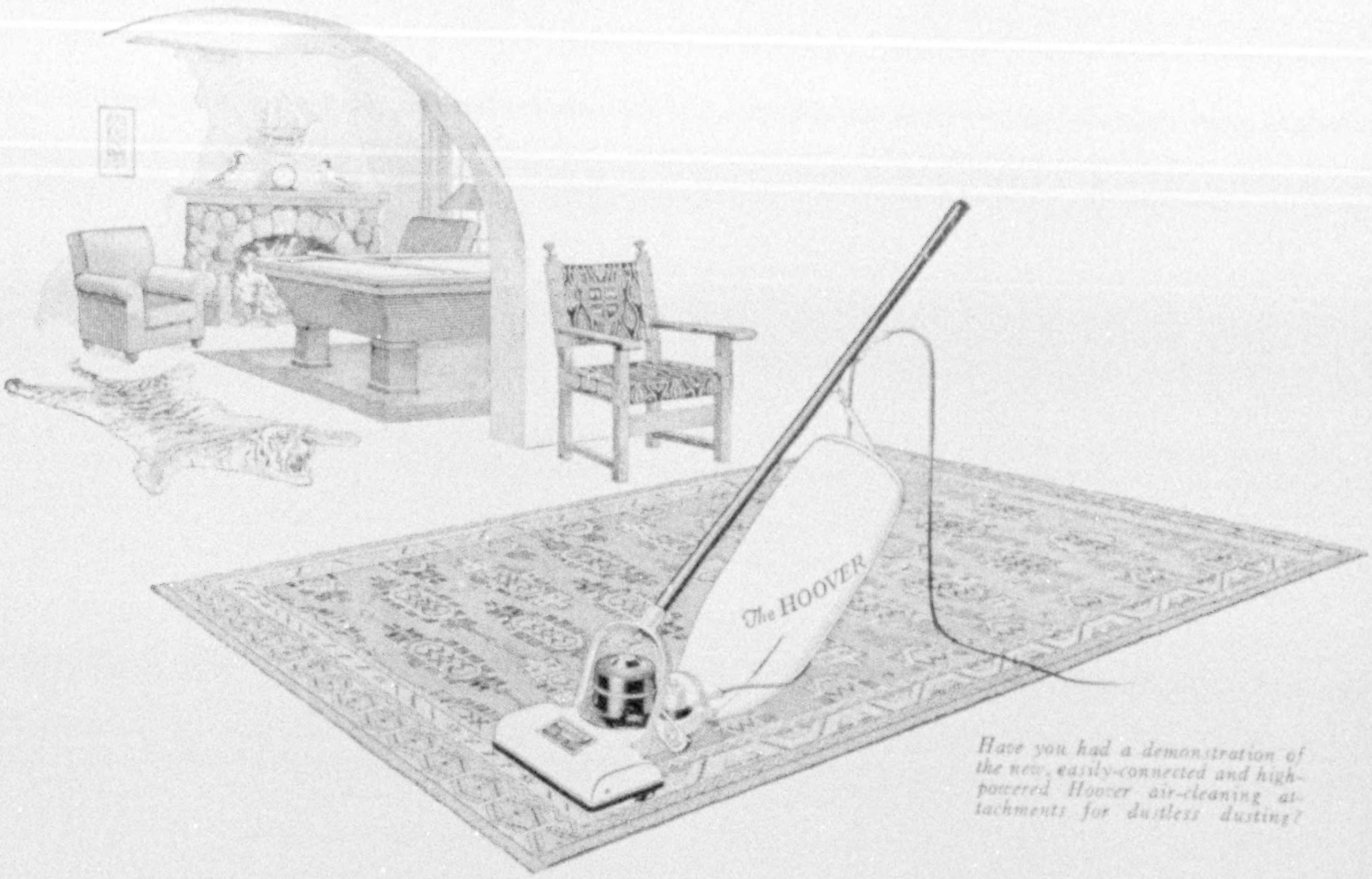

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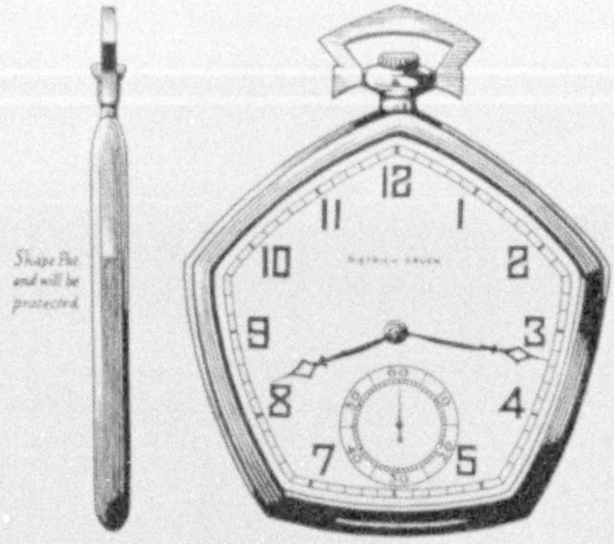

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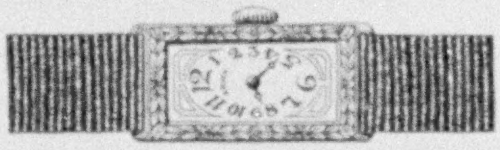

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